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An Assessment of Performance, Employment Generation, and Stakeholder Satisfaction of Dedicated Economic Centers in Sri Lanka's Vegetable Sector

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Abstract

Agricultural markets play a vital role in connecting producers and consumers. However, in Sri Lanka's upcountry vegetable sector, smallholder farmers continue to face challenges due to weak governance structures and inadequate infrastructure. This study assessed the performance and socio-economic impacts of Dedicated Economic Centres (DECs) in Sri Lanka's upcountry vegetable sector, focusing on Nuwara Eliya, Matale, and Badulla. The main objective of this study is to evaluate market functionality, examine social outcomes, and identify areas for operational and institutional improvements. Primary data were collected from market participants, including farmers, traders, transporters, and service providers, and supplemented with DEC transaction records from 2022 to 2025. A Market Functionality Index (MFI) was developed to assess infrastructure quality, operational efficiency, transparency, stakeholder satisfaction, and accessibility, while a Social Performance Index (SPI) measured employment generation and stakeholder satisfaction. The results showed that Dambulla DEC achieved the highest MFI score (0.72), followed by Keppetipola (0.69) and Nuwara Eliya (0.57), indicating differences in efficiency and governance. In terms of social performance, Nuwara Eliya DEC led with an SPI of 0.875, while Badulla (0.525) and Matale (0.275) demonstrated moderate to low social outcomes. The study concluded that DECs played a significant role in enhancing market

efficiency and supporting rural livelihoods; however, targeted improvements in infrastructure, administrative coordination, and stakeholder engagement such as expanding cold storage facilities and strengthening information systems were needed to enhance inclusivity, resilience, and the overall effectiveness of the DEC network.

Keywords: Governance, Infrastructure, Market Functionality Index (MFI), Social Performance Index (SPI), Stakeholder Satisfaction

1. Introduction

Agricultural marketing has historically played a vital role in shaping rural livelihoods, ensuring food security, and maintaining price stability across developing economies. In Sri Lanka, the vegetable subsector remained a central pillar of the national agricultural economy, contributing significantly to rural household incomes and the country's overall food supply chain (Central Bank of Sri Lanka, 2023). Despite its importance, the sector continued to suffer from several inefficiencies, including high price volatility, limited market coordination, unequal access to information, and substantial post-harvest losses. However, to mitigate these systemic issues, the Government of Sri Lanka introduced Dedicated Economic Centres (DECs) in the mid-1990s as an institutional reform aimed at improving market transparency and efficiency. These centers were established to operate as centralized wholesale markets, enabling direct linkages between producers, traders, and consumers while reducing transaction costs and stabilizing prices. However, the actual performance of DECs in overcoming market inefficiencies has yielded mixed outcomes, and several structural challenges persist. Empirical research in the vegetable marketing system has shown continued disparities between farm-gate and retail prices, irregular price transmission, and a strong influence of intermediaries and trader networks that often control market flows (Ranathilaka & Andri, 2014; Samarasinha, 2018). For example, findings from the wholesale market in Dambulla demonstrated that uneven bargaining power and collusive practices among middlemen could widen marketing margins and reduce overall efficiency (Ranathilaka & Andri, 2014). Earlier work by Rathnachandra and Malkanthi (2025) also highlighted that Sri Lanka's vegetable collection and distribution channels suffer from logistical and structural constraints that limit both efficiency and equity within the value chain. A major challenge arose from the geographical isolation of many smallholder farms, which were often located in remote areas with weak infrastructure and poor access to road networks. These spatial limitations elevated transport costs, reduced delivery timeliness, and compromise produce quality. Consequently, small-scale farmers faced a competitive disadvantage compared to larger commercial growers who had better access to transport facilities and market outlets. Beyond logistical constraints, socio-economic factors further shaped the market outcomes. Restricted access to formal credit and

dependence on informal lending arrangements with traders diminished farmers' bargaining strength during price negotiations. Such credit-linked dependencies frequently compelled farmers to sell produce under unfavorable conditions and at reduced prices, reinforcing cycles of market vulnerability and income insecurity among rural producers (Rathnachandra & Malkanthi, 2025). The Sri Lankan government introduced Dedicated Economic Centres (DECs) following the 1998 budget proposal to strengthen regional agro-product marketing and promote fair trade. The first centre, established in Dambulla in 1999, aimed to create a competitive marketplace that would ensure fair prices for producers, affordable food for consumers, and better access for wholesalers (National Audit Report, 2020). Today, DECs serve as the main distribution hubs for vegetables and fruits across the island, handling over 60% of total agricultural trade (Wijesinghe et al., 2021). Currently, eighteen centers operated under the Ministry of Agriculture, while the Peliyagoda and Norochcholai DECs function under local authorities. The government's broader objectives in establishing these centers were to improve the quality of regional agro-based production, promote efficient and competitive market systems with minimal intermediary involvement, ensure stable prices, enhance the nationwide distribution of local produce, and reduce transport costs and post-harvest waste, particularly for small and medium-scale farmers. The Ministry of Agriculture has prioritized the development and strengthening of DECs as a key focus under the National Agriculture Policy (2021) while through theme on Agri-Entrepreneurship and Markets (Theme 6), the National Agriculture Policy of Sri Lanka (2021) emphasized the promotion of market-oriented agricultural systems and strengthened collaboration among value chain actors to enhance competitiveness in both domestic and international markets (Ministry of Agriculture, 2021).

The primary aim of this study was to evaluate the overall functionality and socio-economic performance of DECs in Matale, Nuwara Eliya, and Badulla within Sri Lanka's national agricultural marketing framework. The study addressed the research problem of persistent inefficiencies in upcountry vegetable markets, including weak governance, inadequate infrastructure, and limited stakeholder participation, which constrain the effectiveness and inclusivity of DECs. Specifically, the research objectives were: (i) to assess operational performance and market functionality using a Market Functionality Index (MFI), (ii) to identify and analyze key functional, institutional, and administrative challenges affecting DEC operations, and (iii) to evaluate the social and economic impact of DECs using a Social Performance Index (SPI), focusing on employment generation and stakeholder satisfaction. These objectives were achieved through a mixed-method approach, integrating quantitative data collection from 150 stakeholders for index calculation with qualitative insights from interviews, focus group discussions, and field observations. The qualitative

insights derived from focus group discussions and key informant interviews are integrated under thematic sections such as governance practices, infrastructure constraints, and stakeholder participation. These qualitative data were analyzed using a thematic analysis approach. All interviews and focus group discussions were first transcribed verbatim, after which a systematic coding process was carried out manually using Microsoft Excel. Codes were organized into spreadsheets, enabling the identification of recurring patterns and key issues across respondents. These codes were then grouped into broader themes and sub-themes aligned with the study objectives. This process facilitated a structured interpretation of stakeholder perceptions, institutional challenges, and socio-economic impacts. This mixed-method approach allowed systematic comparison of DEC performance, while also capturing contextual governance and socio-economic factors, thus ultimately determining the economic viability and social acceptability of DECs as sustainable and inclusive market governance mechanisms that enhance efficiency, equity, and resilience in Sri Lanka's vegetable marketing systems.

According to the Ministry of Agriculture, DECs have been established to distribute fruit and vegetable production island-wide, based on the producing areas as well as the consuming areas (Table 01). These centers function as strategic hubs within the national agricultural marketing network, enabling the aggregation, wholesale trading, and redistribution of produce across the island. By linking producers, wholesalers, and retailers, DECs streamlined market operations, reduced post-harvest losses, and ensured a more balanced and accessible supply of agricultural commodities throughout the country.

Table 01: Established Dedicated Economic Centres in Sri Lanka

Dedicated Economic Centre	**District Located**	**Establishment Criteria**	**Present Functionality**
Dambulla DEC	Matale	Based on producing area	In operation
Nuwara Eliya DEC	Nuwara Eliya	Based on producing area	In operation
Keppetipola DEC	Badulla	Based on producing area	In operation
Thambuttegama DEC	Anuradhapura	Based on producing area	In operation
Embilipitiya DEC	Ratnapura	Based on producing area	In operation
Kuruduwatta DEC	Kandy	Based on producing area	In operation
Norochcholai DEC	Puttalam	Based on producing area	In operation
Meegoda DEC	Colombo	Based on consuming area	In operation
Welisara	Gampaha	Based on consuming area	In operation
Veyangoda	Gampaha	Based on consuming area	In operation
Narahenpita	Colombo	Based on consuming area	In operation
Ratmalana	Colombo	Based on consuming area	In operation
Ampara	Ampara	Based on consuming area	In operation
Peliyagoda	Gampaha	Based on consuming area	In operation

Kilinochchi	Kilinochchi	Based on distribution area	Not in operation
Jaffna	Jaffna	Based on distribution area	Not in operation
Vavuniya	Vavuniya	Based on distribution area	Not in operation
Batticaloa	Batticaloa	Based on distribution area	Not in operation

Source: Ministry of Agriculture (2024 December)

At present, eighteen DECs have been established across Sri Lanka to provide essential market infrastructure for the buying, selling, storing, and distribution of agricultural produce. Of these, fourteen centres, excluding those in Vavuniya, Kilinochchi, Jaffna, and Batticaloa, were currently operational. The management of DECs has been overseen by Management Trusts chaired by the District Secretary or Government Agent of the respective district, with ex-officio representation from relevant government agencies and trader associations, in accordance with the Cabinet decision of 10 January 2006. However, the absence of a unified and legally accountable governance structure has limited the efficiency and long-term sustainability of these centres. Recognizing this gap, the Cabinet of Ministers recently approved a proposal submitted by the Minister of Trade, Commerce, Food Security, and Co-operative Development to establish a limited liability company tasked with the development, expansion, and professional management of DECs (Cabinet Office, 2025). This institutional reform aims to introduce a more centralized, transparent, and financially viable management model that can strengthen operational efficiency, accountability, and strategic growth within Sri Lanka's agricultural marketing network.

Accordingly, this study was guided by the central research question of the extent to which Dedicated Economic Centres (DECs) function as efficient, inclusive, and socially beneficial market governance mechanisms within Sri Lanka's upcountry vegetable sector. In addressing this, the study focused on DECs in Nuwara Eliya, Matale (Dambulla), and Badulla (Keppetipola), examining their performance in terms of market functionality, governance quality, infrastructure adequacy, employment generation, and stakeholder satisfaction. It further identified the key institutional and operational challenges that constrain their efficiency and long-term sustainability within the national agricultural marketing system.

2. Literature Review

2.1. Structure of Vegetable Supply Chains and Role of Intermediaries

The supply chain for fruits and vegetables involved multiple actors including farmers, traders, wholesalers, and retailers who collectively determined how produce moves from farm to consumer. In many developing countries, the dominant marketing channels remained intermediary-based, where most produce passes through several intermediaries before reaching final markets, limiting direct access for smallholder

farmers and reducing their share of profits (Producer–local trader–wholesaler–retailer–consumer) (Kumar et al., 2025). In Sri Lanka's upcountry vegetable sector, traditional supply systems were characterized by a larger number of intermediaries that increased marketing margins and contributed to inefficiencies, resulting in lower farm-gate prices and higher consumer costs (W. Wanasinghe & Sachitra, 2022; Rathnachandra & Malkanthi, 2025). These structural features including inadequate rural infrastructure and limited market integration highlighted the persistent challenges smallholders faced in participating effectively in vegetable markets. According to Viswanadham (2007), horticultural products typically passed through six to seven intermediaries before reaching final customers. Each intermediary performed essential functions such as transferring ownership, transporting the produce, maintaining quality, handling payments, and ensuring timely delivery to buyers (Halder & Pati, 2011), Middlemen dominated the sector by establishing distribution networks and storage facilities for specific types of produce. Similarly, some supermarkets developed long-term partnerships with these intermediaries to secure a consistent supply of fruits and vegetables (Government of Kenya, 2003). The connection between farmers and markets was therefore vital to the development of the subsector, particularly in contexts where middlemen exert significant control. In Sri Lanka, the vegetable marketing system was largely managed by the private sector (Vidanapathirana, 2008), and marketing operations substantially influence both farmer profits and consumer availability. High marketing costs and excessive margins were persistent challenges, while limited knowledge of value addition and production planning often led to seasonal oversupply. The lack of post-harvest handling skills and restricted accessed to market information further constrain farmers' ability to enhance the value of their produce (Serem, 2010).

2.2. Infrastructure and Logistics Constraints in Vegetable Marketing

Infrastructure played a pivotal role in facilitating efficient vegetable collection and distribution by improving market access and reducing logistical inefficiencies. The recent food flow mapping in Sri Lanka highlighted that poor rural urban connectivity and inadequate transportation infrastructure disrupt food supply chains, limit access to markets, and increase post-harvest losses for perishable commodities such as vegetables (Food and Agriculture Organization [FAO], 2024). The World Bank evidence from multiple countries showed that enhanced rural road networks and connectivity significantly improve farmers' ability to reach markets, reduce transport costs and travel time, and increase volumes of agricultural produce transported, thereby strengthening food security and rural incomes (World Bank, 2024). In the context of Sri Lanka's upcountry vegetable sector, the sustainability challenges in the supply chain, including long-distance transportation, limited access to reliable transport, and weak integration of logistics systems, have been identified as major

constraints to efficient market participation and income generation for smallholder farmers (Rathnachandra & Malkanthi, 2025). These findings highlighted the importance of coordinated investment in transportation infrastructure and supporting logistics to enhance farm-to-market efficiency, reduce losses, and improve economic outcomes for all supply chain actors. Reliable transportation facilitates higher production levels and reduces losses, allowing farmers to benefit economically and maintain a more consistent presence in competitive markets. The collection and procurement practices of vegetables also establish frameworks for sustainable commercial relationships between farmers, suppliers, and retailers, including supermarkets. Efficient procurement requires frequent deliveries, stable quality, and consistency in product characteristics such as size, color, and volume (FAO, 2024).

2.3. Governance, Coordination, and Technology in Modern Supply Chains

In international contexts, retailers often structured their agreements with growers based on these observable characteristics, allowing for better management of quality and reduced uncertainty in product attributes (FAO, 2024). Maintaining quality control remains critical in fresh vegetable supply chains, as retailers continue to face challenges related to monitoring freshness, managing short shelf lives, and minimizing post-harvest losses. Recent studies emphasized that improved supply chain coordination and governance mechanisms play a vital role in addressing these challenges by enhancing information sharing, reducing uncertainty, and aligning incentives among actors (Zhao et al., 2019). Empirical evidence suggested that long-term contractual relationships and collaborative partnerships between producers and retailers significantly reduce transaction costs and information asymmetry while strengthening trust and supply reliability (Jia & Wang, 2022). Moreover, the adoption of digital traceability systems and real-time monitoring technologies, such as IoT-enabled cold chain management, has been shown to improve transparency, quality assurance, and shelf-life management in fresh produce markets (Charlebois et al., 2024). Collectively, these recent findings reinforced that effective coordination, relational governance, and technology integration were essential for ensuring efficiency, reliability, and mutual benefits for both producers and buyers within modern vegetable supply chains.

2.4. Post-Harvest Losses and Operational Inefficiencies in DECs

In Sri Lanka, institutional stakeholders such as the Dambulla DEC have recognized that market inefficiencies were not confined to pricing and governance structures but also extended to post-harvest management and logistics. Officials from the DEC reported that nearly 20% of the vegetable harvest was lost during transportation due to inadequate packaging, rough handling, and inefficient delivery practices. Similarly, a study conducted by the Ministry of Internal Trade and Cooperatives, accordance to Greshan and Kithsiri (2021), estimated that more than 30% of fruits

and vegetables handled through the DEC were wasted. These post-harvest losses impose a heavy economic loss on both producers and traders, reducing overall profitability while contributing to market price fluctuations and food wastage. These inefficiencies ultimately counteracted the initial goals of establishing DECs to improve coordination across the supply chain, enhance price transparency, and reduce losses through better infrastructure and operational management. The high levels of spoilage indicated that while DECs have improved physical market access for farmers, the supporting logistical systems, cold chain facilities, and handling standards remain underdeveloped. This gap highlighted the need for stronger governance interventions, technological upgrading, and farmer training to reduce losses along the supply chain.

2.5. Traditional and Modern Market Channels in Sri Lanka

The broader marketing landscape for vegetables and fruits in Sri Lanka remains complex and fragmented, characterized by a coexistence of both traditional and modern market channels. The Japan International Cooperation Agency (JAICA, 2013) observed that despite the emergence of modern retail outlets and supermarket chains, the majority of small and medium-scale farmers continued to rely on conventional marketing systems such as local collectors, commission agents, and wholesale markets, including DECs. These traditional channels dominated the distribution network from farm to consumer due to their long-standing social relationships and lower entry barriers for farmers. However, the traditional system also perpetuated inefficiencies such as poor coordination, a lack of transparency in price formation, and limited traceability of produce. They served as centralized trading points that facilitated large-scale aggregation and distribution, yet they still exhibited many of the structural inefficiencies found in the broader market system. Accordingly, while DECs played a vital role in organizing the vegetable and fruit trade, their full potential as instruments of governance and market efficiency has yet to be realized.

Earlier research largely attributed market inefficiencies to intermediary dominance, weak logistics, and inadequate infrastructure (P. Wanasinghe & Sachitra, 2022; Rathnachandra & Malkanthi, 2025). The importance of coordination, relational governance, and technology adoption in improving market performance (P. Wanasinghe & Sachitra, 2022). However, few studies integrated these structural and social dimensions into a unified evaluative framework capable of assessing both functional effectiveness and stakeholder well-being (P. Wanasinghe & Sachitra, 2022). This limitation underscored the need for a multidimensional approach to market assessment. Accordingly, the Market Functionality Index (MFI) was adopted to capture key operational attributes identified across the literature, namely, infrastructure quality, transparency, accessibility, and efficiency, while the Social

Performance Index (SPI) reflects the growing scholarly recognition that employment generation and stakeholder satisfaction were critical indicators of inclusive market development (Rathnachandra & Malkanthi, 2025).

2.6. Assessment Methods Used in Agricultural Market Performance Studies

Previous research assessing agricultural market performance has applied a range of quantitative and qualitative methods to evaluate efficiency, governance, and socio-economic outcomes. The common approaches include price spread and marketing margin analysis to measure profit distribution among value chain actors (Acharya & Agarwal, 2011), value chain analysis frameworks to examine structural linkages and power dynamics (Kaplinsky & Morris, 2001), and econometric price transmission models to assess market integration and efficiency (Sexton et al., 2003). Several studies have employed cost–benefit analysis (CBA) to evaluate infrastructure and institutional investments (Boardman et al., 2018). In addition, researchers have increasingly adopted composite index approaches to measure multidimensional market performance and institutional quality (Nardo et al., 2008). By synthesizing these complementary perspectives, the study moved beyond descriptive accounts of marketing challenges and provided a more analytically grounded methodology for evaluating the performance and developmental contribution of DECs in Sri Lanka's upcountry vegetable sector.

3. Methodology

3.1. Research Design

This study primarily adopted a quantitative research design with limited qualitative inputs to evaluate the functionality, socio-economic impacts, and governance effectiveness of Dedicated Economic Centres (DECs) in Sri Lanka's upcountry vegetable sector. Primary data were collected from 150 market participants, including farmers, traders, transporters, and service providers, using structured questionnaires. The quantitative data were analyzed using descriptive statistics and composite index construction methods to develop the Market Functionality Index (MFI) and Social Performance Index (SPI). The quantitative component focused on assessing the functional performance of DECs, including indicators such as market participation, price dissemination, transaction volumes, cost efficiency, and income effects on farmers and traders. Structured questionnaires and secondary market data were used to generate numerical evidence aligned with the study's functional and socio-economic objectives. The qualitative component was applied to examine governance structures, coordination mechanisms, and institutional challenges within DECs. Semi-structured interviews and focus group discussions with farmers, traders, commission agents, and officials were conducted to explore issues related to decision-making processes, rule enforcement, transparency, and stakeholder trust that could

not be adequately captured through the quantitative data alone. The study focused on DECs located in Matale, Nuwara Eliya, and Badulla, since these centres function as major trading hubs for upcountry vegetables and represent diverse agro-climatic and institutional contexts.

Matale, Nuwara Eliya, and Badulla were selected for their analytical importance in capturing the structural diversity of Sri Lanka's upcountry vegetable marketing system. These districts differ significantly in agro-ecological characteristics, production intensity, supply chain organization, and market accessibility, enabling a more comparative assessment of DEC performance. Nuwara Eliya represented a highly commercialized, high-altitude production zone with strong market integration, while Badulla reflected a geographically dispersed farming landscape where transport constraints and institutional coordination shape market participation. In contrast, Matale functions as a strategic transit and aggregation region linking major producing areas with national wholesale markets, particularly through the Dambulla DEC. Examining these contrasting contexts allowed for the identification of location-specific governance and infrastructure challenges while improving the generalizability of the findings to the broader upcountry vegetable sector. By integrating quantitative measurements with qualitative insights, the mixed-methods approach enabled triangulation of findings and strengthened the validity of conclusions drawn in relation to the study objectives.

3.2. Study Area and Sampling

The study was conducted across the three major upcountry vegetable-producing districts of Matale, Nuwara Eliya, and Badulla. A purposive sampling technique was used to select DECs based on their significance within the regional agricultural marketing system. Within each DEC, market participants were selected using a stratified random sampling approach to ensure proportional representation of all key stakeholder groups. The main stakeholders included traders (wholesalers, retailers, and commission agents), transporters (from farms to DECs, from DECs to wholesalers, from DECs to retailers, and from DECs to other contract suppliers), farmers (vegetable and fruit producers), and other service providers such as "Nattami" (market helpers) and security officers. A total of 150 respondents were sampled across the three DECs, with the allocation stratified according to stakeholder representation and relative market importance to ensure a balanced and statistically representative sample. A sample size of 150 respondents was considered statistically adequate based on established methodological guidance. Krejcie and Morgan (1970) developed a widely accepted sample size determination table demonstrating that samples ranging between approximately 140 and 169 respondents are sufficient for medium-sized populations, ensuring reliable statistical estimates and generalizable

findings. The stakeholder perspectives were captured through structured survey responses and therefore, the research remains primarily quantitative in nature, with findings derived from statistically measurable indicators rather than qualitative interpretation.

3.3. Data Collection

This study applied two complementary indices to evaluate DECs. The Market Functionality Index (MFI) was used exclusively to measure market performance, focusing on operational efficiency, price stability, transaction transparency, infrastructural adequacy, and coordination effectiveness. The indicator scores were normalized, weighted, and aggregated to generate a composite performance score for each DEC. In contrast, the Social Performance Index (SPI) was applied to assess socio-economic outcomes, specifically employment generation, income stability, and stakeholder satisfaction among farmers, traders, and intermediaries operating within DECs. The SPI captured welfare-oriented impacts that extend beyond market efficiency and reflect the broader development role of DECs. The quantitative data were collected using a researcher-administered structured questionnaire, developed based on a review of prior studies on agricultural market functionality and institutional performance. The questionnaire consisted of closed-ended and Likert-scale items covering market operations, pricing mechanisms, transaction volumes, infrastructure adequacy, and institutional efficiency. In addition, the market transaction records and official DEC reports for the period 2022 to 2025 were reviewed to validate the data. The MFI applied in this study was developed by adapting established market performance and functionality assessment frameworks used in agricultural and food market research. Instead of adopting a single pre-existing index, the MFI was contextualized for DECs by synthesizing indicators commonly used in market efficiency, price discovery, infrastructure adequacy, and transparency assessments. Specifically, the index structure draws on conceptual and empirical approaches proposed by FAO for market functionality analysis, as well as market performance frameworks outlined in agricultural economics literature (FAO, 2021; Barrett et al., 2022). The selected indicators, market quantity, price discovery efficiency, transaction transparency, infrastructural adequacy, and coordination efficiency were identified based on their relevance to wholesale agricultural markets and DECs, as supported by prior studies. The indicator weighting and aggregation procedures followed standardized index construction methods widely applied in composite market indices. The use of separate indices ensured conceptual clarity by distinguishing how well markets function (performance) from how they affect livelihoods and stakeholders.

3.4. Construction of the Market Functionality Index (MFI)

The MFI was developed as a composite performance index, adapted from established agricultural market functionality and performance assessment frameworks (FAO, 2021). Five indicators representing critical dimensions of market performance were selected: infrastructure adequacy, operational efficiency, transaction transparency, accessibility, and price discovery efficiency. The data for these indicators were obtained from structured questionnaires administered to market participants, direct field observations, and official DEC operational records (2022–2025). Each indicator was standardized using a min–max normalization method to a 0–1 scale to ensure comparability. The indicator weights were assigned equally to minimize subjective judgment in the absence of strong theoretical or empirical evidence supporting differential weighting. Equal weighting was widely applied in composite index construction, particularly in exploratory assessments, as it promotes transparency and avoids overemphasizing any single dimension of performance (FAO, 2021). This index enabled objective comparison of market functionality across Matale, Nuwara Eliya, and Badulla DECs, thereby addressing the first and third research objectives.

The general formula for calculating the MFI was:

$$MFI_j = \sum_{i=1}^{n} \omega_i \cdot x_{ij}$$

MFI_j = Market Functionality Index of market / DEC
n = Total number of indicators (infrastructure, efficiency, transparency, etc.)
x_{ij} = Score of the ith indicator for the market
ω_i = Weight assigned to the ith indicator (sum of all weights = 1)

The MFI was applied as a composite tool for assessing the overall performance of agricultural markets, including DECs. It incorporated several key dimensions of market operations to provide a comprehensive evaluation. These included Infrastructure (I), which examined the adequacy of trading spaces and storage facilities; Operational Efficiency (O), reflecting transaction speed and the timeliness of price information dissemination; Market Transparency (T), assessing fairness in grading, weighing, and reporting practices; Stakeholder Satisfaction (S), measuring the level of satisfaction among farmers and traders with available market services; and Accessibility and Logistics (A), which evaluated transport connectivity and ease of physical access to the market. Each indicator was standardized on a scale ranging from 0 to 1, where a value of 1 denoted excellent or fully functional performance, and 0 represented poor functionality.

3.5. Construction of the Social Performance Index (SPI)

The SPI was designed to assess the socio-economic outcomes of DEC operations, particularly employment generation and stakeholder satisfaction, in line with impact evaluation approaches used in agricultural market studies (Barrett et al., 2022; FAO, 2021). The SPI was designed to assess the social impact of DECs by capturing both employment generation and stakeholder satisfaction. The index consisted of two main components: Employment Generation, which includes the number of Direct Employment (DE) opportunities provided by the DEC and the Indirect Employment (IE) created through associated activities such as transportation and auxiliary services; and Stakeholder Satisfaction, which evaluated the perceptions of key market participants. Satisfaction was measured on a 5-point scale (1 = Very unsatisfied, 5 = Very satisfied) across four stakeholder groups: Farmers (FS), Buyers/Traders (BS), Transporters (TS), and Other Service Providers (OSS) (Table 03). By integrating these components, the SPI provided a comprehensive measure of the social performance and inclusivity of the DECs.

By applying MFI and SPI together, the study systematically evaluated how efficiently DECs function as market institutions and how effectively they contribute to local livelihoods, providing a comprehensive assessment aligned with the overall research objectives.

3.6. Standardized Stakeholder Satisfaction Scores

Satisfaction scores are averaged across stakeholder groups and converted to a 0–1 scale:

$$S_s = \frac{FS + BS + TS + OSS}{4 \times 5}$$

Where:
FS = Farmer Satisfactio
BS = Buyer/Trader Satisfaction
TS = Transporter Satisfaction
OSS = Other Service Providers' Satisfaction
5 = Maximum possible score

4. Analysis and Discussion

4.1. Market Functionality Assessment

The Market Functionality Index (MFI) was a composite indicator used to systematically assess the operational performance of markets. It integrated multiple dimensions of market functionality, such as infrastructure, operational efficiency, transparency, stakeholder satisfaction, and accessibility into a single, quantifiable

score. The MFI was a quantitative measure designed by the World Food Programme (WFP)'s Research, Assessment & Monitoring (RAM) and Supply Chain (SC) Divisions to benchmark market functionality (World Food Programme, 2020).

Table 02: Market Functionality Indicators and Scores for DECs

DEC	Infrastructure (I)	Operational Efficiency (O)	Transparency (T)	Stakeholder Satisfaction (S)	Accessibility (A)
Nuwara Eliya	0.6	0.5	0.6	0.65	0.5
Dambulla	0.8	0.7	0.7	0.7	0.7
Keppetipola	0.7	0.65	0.7	0.8	0.6

Source: Survey Data (from 2022- 2025)

The MFI assessment of the three DEC) revealed notable differences in performance across key indicators (Table 02). The Nuwara Eliya DEC recorded moderate scores, with infrastructure at 0.6, operational efficiency at 0.5, transparency at 0.6, stakeholder satisfaction at 0.65, and accessibility at 0.5, indicating some limitations in both operations and access.

Dambulla DEC demonstrated comparatively higher functionality, achieving scores of 0.8 for infrastructure, 0.7 for operational efficiency, 0.7 for transparency, 0.7 for stakeholder satisfaction, and 0.7 for accessibility, reflecting better overall performance and efficiency. Keppetipola DEC showed intermediate performance, with infrastructure at 0.7, operational efficiency at 0.65, transparency at 0.7, stakeholder satisfaction at 0.8, and accessibility at 0.6, highlighting strengths in stakeholder satisfaction and balanced operational efficiency, although with room for improvement in accessibility.

The MFI analysis revealed distinct differences in performance among the three DECs. The Nuwara Eliya DEC recorded the lowest MFI score of 0.57, indicating moderate functionality and highlighting operational and accessibility constraints that limit its efficiency. The Dambulla DEC achieved the highest MFI of 0.72, reflecting strong infrastructure, efficient operations, and effective stakeholder satisfaction, making it the most functional centre among the three.

The Keppetipola DEC obtained an intermediate MFI of 0.69, demonstrating relatively good performance, particularly in stakeholder satisfaction, although it still faces challenges in accessibility and operational efficiency. Overall, the MFI results indicated that all three DECs contributed to the regional vegetable marketing system, targeted improvements in infrastructure, logistics, and operational practices, especially at Nuwara Eliya and Keppetipola, could further enhance market functionality, efficiency, and inclusivity.

In the proceeding sections the descriptions of infrastructure and operational efficiency, transparency and stakeholder satisfaction, and accessibility and logistics were based on qualitative data collected through focus group discussions and key informant interviews conducted with traders, farmers, and DEC officials across the selected centres. Thses data were analyzed using a thematic analysis approach, supported by narrative description.

4.2. Infrastructure and Operational Efficiency

Infrastructure and operational efficiency were key contributors to the MFI scores across the three DECs. The Dambulla DEC recorded the highest infrastructure score, reflecting its larger trading space, better storage capacity, and more streamlined transaction processes. Keppetipola also demonstrated relatively strong infrastructure, while Nuwara Eliya showed moderate performance, indicating constraints in space utilization, cold storage availability, and operational flow. These infrastructural differences directly influenced the market throughout and overall efficiency across centres. These infrastructural and operational shortcomings directly impacted market quantity and overall efficiency, constraining the ability of these centres to fully support the regional vegetable supply chain.

4.3. Transparency and Stakeholder Satisfaction

Transparency in grading, weighing, and pricing, together with stakeholder satisfaction, emerged as key factors influencing variations in DEC performance. The Nuwara Eliya centre demonstrated comparatively higher levels of transparency and user satisfaction, as both farmers and traders reported fair trading practices and timely access to market information. In contrast, respondents from Matale and Badulla noted occasional conflicts related to space allocation and delays in information dissemination, which contributed to the lower MFI scores and highlighted persistent administrative and coordination challenges within those centres.

4.4. Accessibility and Logistics

Accessibility and logistics also played an important role in shaping the MFI outcomes. The Nuwara Eliya DEC benefited from its central location and well-developed transport network, which facilitated the efficient flow of vegetables from production sites to the market and onward to wholesalers and retailers. In contrast, although the Matale and Badulla centres remained operational, they experienced transport delays arising from inadequate road infrastructure and logistical inefficiencies. These constraints reduced farmers' direct access to the markets and increased their dependence on intermediaries, thereby limiting overall market efficiency.

4.5. Implications and Interpretation

Overall, the MFI analysis indicates that although all three DECs play a vital role in supporting upcountry vegetable marketing, there is a pressing need for targeted improvements in infrastructure, logistics, and operational management, particularly in Matale and Badulla, to enhance both efficiency and inclusivity. The findings also confirm that the MFI served as a useful framework for assessing market performance, pinpointing operational bottlenecks, and prioritizing policy interventions. Moreover, the strong performance of the Dambulla DEC provides an operational benchmark for improving functionality in other centres that can guide the adoption of best practices across other centres, thereby contributing to a more resilient and well-coordinated national agricultural marketing system.

4.6. Social Performance Index (SPI)

Aggregating standardized indicators of direct and indirect employment creation and stakeholder satisfaction, the SPI provided a structured assessment of how DEC operations translate into tangible social benefits. Table 3 presented the SPI results across the Matale, Nuwara Eliya, and Badulla DECs, highlighting inter-centre variations and linking observed outcomes to institutional arrangements and governance practices.

Table 03: Employment and Stakeholder Satisfaction Levels across Dedicated Economic Centres (DECs)

DEC	DE	IE	FS	BS	TS	OSS
Nuwara Eliya	15	30	4	4	3	4
Matale	10	20	3	3	2	3
Badulla	12	25	3	3	3	3

Source : Survey Data (from 2022- 2025)

Direct Employment (DE) , Indirect Employment (IE) , Farmers (FS), Buyers/Traders (BS), Transporters (TS), and Other Service Providers (OSS)

Table 03 presented a comparison of employment generation and stakeholder satisfaction across the three DECs in Nuwara Eliya, Matale, and Badulla. The findings indicated that the Nuwara Eliya DEC supports the highest level of both direct and indirect employment, providing 15 direct positions and 30 indirect roles, which reflected its larger scale of operations and more organized market management. In contrast, Matale recorded the lowest employment levels, with 10 direct and 20 indirect positions, while Badulla occupied an intermediate position. These differences suggested that the capacity of a DEC to generate employment was closely linked to its operational scale, infrastructure quality, and the efficiency of market processes. Stakeholder satisfaction, measured on a 1 to 5 scale, further highlighted the variation in performance among the centers. The respondents including farmers, traders,

transporters, and other service providers expressed higher satisfaction with the Nuwara Eliya DEC, with a score ranging from 3 to 4, reflecting perceived fairness in trading practices, timely access to market information, and effective coordination of services.

Stakeholder satisfaction was measured using a five-point Likert scale (1 = very dissatisfied to 5 = very satisfied). The responses were analyzed using descriptive statistics, including mean scores and frequency distributions, to identify satisfaction patterns across DECs. The participants from Matale and Badulla reported moderate satisfaction levels, with most responses clustered around scores of 2 and 3, indicating occasional dissatisfaction with market management, allocation of trading space, and logistical support. Comparative mean analysis across centers revealed that DECs with higher reported employment generation also recorded higher average satisfaction scores. This pattern suggests a positive association between employment opportunities, operational efficiency, and stakeholder perceptions of market performance. Higher employment generation appears to strengthen local livelihoods while improving engagement and trust among market actors, reinforcing the social and economic role of DECs. Conversely, lower employment levels and moderate satisfaction scores in Matale and Badulla highlight areas requiring targeted interventions, such as infrastructure improvements, enhanced logistics, and better stakeholder communication, to strengthen both social outcomes and overall market functionality.

4.7. Social Performance Index (SPI) Equation

The Social Performance Index (SPI) was a quantitative measure used to assess the social impact of a market or institution, such as a DEC. It combines two main components: employment generation (direct and indirect jobs created) and stakeholder satisfaction (farmers, buyers, transporters, and service providers), producing a single score between 0 and 1.

$$SPI = \omega_E \times \left(\frac{DE_S + IE_S}{2}\right) + \omega_S \times \left(\frac{FS + BS + TS + OSS}{4 \times 5}\right)$$

Where:
DEs = Standardized Direct Employment
IEs = Standardized Indirect Employment
FS = Farmer Satisfaction (1–5 scale)
BS = Buyer/Trader Satisfaction (1–5 scale)
TS = Transporter Satisfaction (1–5 scale)
OSS = Other Service Providers Satisfaction (1–5 scale)
ω_E= Weight assigned to employment component (commonly 0.5)
ω_S = Weight assigned to satisfaction component (commonly 0.5)

The SPI results revealed notable variations in the socio-economic performance of the DECs across the study locations. The Nuwara Eliya DEC recorded the highest SPI value (0.875), driven by strong direct and indirect employment generation and high levels of stakeholder satisfaction. This finding was consistent with earlier studies which mentioned that well-established wholesale markets located in high-production regions tend to generate greater employment opportunities and stronger livelihood linkages due to higher transaction volumes, diversified services, and continuous market activity (FAO, 2021). Similar evidence has been reported by Barrett et al. (2022), who highlight that market institutions functioning as central aggregation hubs often create multiplie effects through logistics, transport, and auxiliary services, thereby enhancing local employment. The Badulla DEC exhibited a moderate SPI score (0.525), reflecting average employment creation and stakeholder satisfaction. This aligned with findings from agricultural market studies in developing countries, which suggested that markets with moderate infrastructure and institutional coordination generate partial social benefits but remain constrained by limited market depth and governance inefficiencies (Wang et al., 2023). Such markets tended to support livelihoods but fell short of maximizing inclusivity and satisfaction among all stakeholder groups.

In contrast, the Matale DEC recorded the lowest SPI score (0.275), indicating weaker social performance in terms of both employment generation and stakeholder satisfaction. This outcome of prior research showed that inadequate infrastructure, weaker governance mechanisms, and limited stakeholder engagement reduce the capacity of market institutions to deliver social benefits (FAO, 2021; Yu & Xiao, 2024). The low satisfaction levels among market participants have been associated with information asymmetries, congestion, and limited service provision, which negatively affect trust and participation in market systems (Yu & Xiao, 2024). Overall, the SPI findings supported the broader literature that emphasizesd the role of market scale, infrastructure quality, and governance effectiveness in shaping socio-economic outcomes. The observed differences among DECs suggested that strengthening institutional coordination, improving service delivery, and expanding employment-linked activities can significantly enhance the social performance of DECs, particularly in underperforming locations such as Matale.

Although Nuwara Eliya recorded a lower MFI compared to Dambulla, it achieved the highest SPI, suggesting that operational efficiency alone does not fully determine social outcomes. One reasonable explanation was the labour-intensive nature of vegetable production in the Nuwara Eliya region, where continuous cultivation cycles and high cropping intensity generate greater demand for both direct and indirect employment. This employment density strengthened livelihood dependence on the market, thereby enhancing stakeholder engagement and satisfaction despite moderate

infrastructural limitations. Moreover, social performance is often influenced by relational and institutional factors rather than purely physical assets.

According to the qualitative data analysis of this study (focus group interviews), the governance was translated into stakeholder satisfaction primarily through reduced uncertainty and transaction risk. Transparent grading, predictable pricing mechanisms, equitable space allocation, and responsive administrative support help minimize conflicts while improving the overall trading experience. Such governance practices foster trust among farmers and traders, strengthen repeated market participation, and enhance perceptions of procedural fairness. In contrast, markets with stronger infrastructure but weaker coordination may perform efficiently in transactional terms yet fail to generate comparable social benefits. This justified Dambulla's superior functional performance did not automatically produce the highest social outcomes, highlighting that institutional quality and stakeholder relationships are equally critical determinants of market success.

5. Conclusion and Recommendations

The primary objectives of this study were to (i) evaluate the market performance of Dedicated Economic Centres (DECs) in Nuwara Eliya, Matale, and Badulla using a Market Functionality Index (MFI), (ii) assess the socio-economic impacts of these centres on employment generation and stakeholder satisfaction using a Social Performance Index (SPI), and (iii) examine governance and coordination mechanisms influencing DEC performance and social outcomes. The main findings revealed notable variations across DECs. In terms of market performance, the Dambulla DEC recorded the highest MFI score, reflecting superior infrastructure, operational efficiency, transparency, and accessibility, while Matale and Badulla demonstrated lower scores due to limited facilities and operational bottlenecks. Regarding social performance, the Nuwara Eliya DEC led in employment generation and stakeholder satisfaction, Badulla exhibited moderate social outcomes, and Matale lagged behind, indicating weaker socio-economic benefits. These findings highlight that DECs play a critical role in improving market efficiency and supporting rural livelihoods, but there is a clear need for targeted interventions, particularly in Matale and Badulla, to strengthen both operational and social performance.

5.1. Recommendations

Based on the study findings, it was recommended that targeted interventions be implemented to enhance the performance and social impact of DECs. For DECs with the lower MFI scores, particularly Matale and Badulla, investments in infrastructure improvements such as expanded trading floors, cold storage, and better market access were essential to improve quantity and operational efficiency. Strengthening governance and administrative mechanisms, including clear space allocation rules,

standardized operational procedures, and digital monitoring systems, can enhance transparency, reduce congestion, and improve stakeholder satisfaction. However, to address weaker socio-economic outcomes, particularly in Matale, capacity-building programs for DEC staff, support for small-scale farmers and transporters, and improved market linkages were recommended to increase employment opportunities and stakeholder satisfaction, as reflected in the SPI. Additionally, the introduction of digital platforms for real-time price dissemination can support informed decision-making for farmers, traders, and transporters. Finally, establishing a regular monitoring system using MFI and SPI indicators can track progress, identify bottlenecks, and guide evidence-based policy interventions, ensuring that DECs function effectively as inclusive, sustainable, and resilient market institutions in Sri Lanka's upcountry vegetable sector.

6. Limitations and Further Research

Despite the insights provided, this study has several limitations. First, the analysis focused only on three DECs in the upcountry regions (Nuwara Eliya, Matale, and Badulla) because of the time and resource limitations, which limited the generalizability of the findings to other districts or the national context. Secondly, the data collected relied on self-reported stakeholder responses for satisfaction, which may be subject to bias or exaggeration. Thirdly, the study used a cross-sectional design, capturing a snapshot in time, which may not fully account for seasonal variations in market functionality or social performance. Finally, although the MFI and SPI provided useful metrics, they may not capture all qualitative aspects of market governance and informal interactions among stakeholders.

Future research could expand the scope to include additional DECs across other regions to improve representativeness and comparative analysis. Longitudinal studies help to capture seasonal fluctuations and long-term trends in both market functionality and social impact. Integrating more qualitative methods, such as in-depth interviews or ethnographic observations, could provide richer insights into stakeholder behavior, conflict resolution, and decision-making processes. Additionally, exploring the relationship between DEC performance and vegetable price volatility, supply chain efficiency, or climate-related factors could provide valuable policy guidance for improving agricultural market governance in Sri Lanka.

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Public Policy Initiatives for Poverty Reduction in Bangladesh: A Case Study of Dhanbari Upazila, Tangail District

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Abstract

Higher level of poverty rate of a country stymies its economic progress and influences socio-economic condition of people. Bangladesh is no exception. Redistributive public policies are needed to improve people's wellbeing and their living conditions. The Bangladesh government has taken several initiatives focusing on poverty reduction. The objectives of the study are to investigate how these policy interventions contribute to reduce poverty and the effects on livelihood of the poor in Bangladesh. The unique feature of this research is its data collection area, as no previous research on this topic has been conducted in any Upazila of Bangladesh, including Dhanbari. The study followed qualitative research methods to capture the real scenario of the stakeholders through twenty-six key informant interviews. A total of twenty direct beneficiaries including eight females of Dhanbari Upazila (Sub-district) of Tangail district and six policy implementers were interviewed. Content analysis was used to analyze and data presentation. The study revealed that policy initiation and its effective implementation mechanisms significantly contributed to poverty reduction. It is evident that target-based initiatives for the group, direct contact and connecting the poor through ICT, inclusiveness in development, constitutional obligation, policy continuation, incremental budget allocation and strong institutional framework helped increasing income, creating employment and enhancing social status of the poor ensemble.

Keywords: Bangladesh, Poverty Alleviation, Socio-Economic Development, Targeted Policy Initiative

1. Introduction

Bangladesh is considered as an emerging economy in the world because of its exponential progress in economic sector and remarkable lift in socio-economic indicators. The higher economic growth despite numerous barriers brings the development miracle status of the country. Bangladesh has been successful in social indicators for last few decades superseding neighbouring countries.

It is evident that child mortality is 2.4% in 2020, maternal mortality is 1.7% in 2017, women's participation in employment is 36.3% in 2019 and primary school enrolment is 98% in 2021 (Bangladesh Bureau of Statistics [BBS], 2019; Karim, 2021). Most important factors are the progressive lift in economic indicators such as, higher GDP growth rate (6.94% in 2021) even during pandemic (5.2%), per capital income (US$2793 in 2023), and graduation to middle income country (BBS, 2019; Karim, 2021). These are sectorial developments which are believed to be important policy drives to alleviate poverty in Bangladesh and contribute to increase per capita income of USD 2738 in 2024 (BBS, 2024).

Sectoral development interventions target the rural development, vulnerable marginalized people, and underprivileged people in order to reduce the overall poverty of the country. Variation of multiple incumbents dictates the urgency of policy formulation, adoption and implementation and attracts special attention for alleviating poverty (Barkat-e-Khuda, 2011; Hossain et al., 2018). Poverty alleviation policy initiatives are intertwined with socio-economic and cultural issues. Additionally, poverty in Bangladesh is much prevalent in rural areas where most people live, compared to urban areas (BBS, 2019; Ministry of Finance, 2023).

The government of Bangladesh has undertaken public policies such as cash incentive and food subsidy programmes under social safety net programmes (SSNPs) in order to reduce the poverty and vulnerability of the poor and build an inclusive society (Sifat, 2021). The performance of policy interventions largely depends on the implementation of how well these are translated to the output and outcome to benefit the real stakeholders. Being a developing country with about 20% of its poor people, Bangladesh is trying hard to address this issue (BBS, 2021). Poverty of Bangladesh is a multidimensional and multifaceted issue that varies across gender, disability, geographical locations, and disaster-prone areas. Bangladesh government has initiated SSNPs with the main purpose of enhancing the socio-economic condition of the poorest community of the country so that they can lead a better life. It follows the life cycle approach of social safety net to get the benefit. Government increased budget by 1.87 per cent from 1,114,670 million taka in 2021-2022 to 1,335,760 million taka in 2022-2023 (Ministry of Finance, 2023). This allocation represents 16.75 per cent of the national budget and 2.55% of GDP. Although the increasing rate per GDP is decreasing, amount of money and number of beneficiaries are increasing every year that indicates the government's priority in reducing poverty by undertaking special interventions. To benefit this poor section of the country, there are multiple programmes taken by the government to uplift the livelihood of this community. Economists and researchers comment that SSNPs are the true driving

forces to reduce the poverty rate, improve their condition of living, mainstream them to society and ultimately to build an inclusive society towards the middle-income country by 2023 and develop the country by 2041 (Islam et al., 2020; Karim, 2021; Karim, 2022c). These programmes have special attention as widows, destitute women deserted by husbands, senior citizens, wounded freedom fighters, disabled people, and orphans are included to get cash incentives and food subsidy (Sifat, 2021). Diversity of incumbents is a major policy agenda of inclusive society which emphasizes in implementing these initiatives (Table 01). Transfer benefits, in both cash or kind, are channeled through formal systems to effectively reach the real stakeholders. Formal channels include government banks such as Rural Savings Bank, Sonali Bank PLC; mobile financial services are offered through various mobile operators and the support of local administration. Utilization of ICT is an effective tool to expedite the process and minimize the third-party role (Karim & Mukta, 2022). However, it creates an obstacle to those who do not have cellular phones (Karim, 2022c).

Cash incentive and food subsidy programmes under SSNPs contributed to the poverty reduction in Bangladesh because of the significant decline of poverty rate from 40.0% in 2005 to 18.7% in 2022 in two decades (Ministry of Finance, 2023). The declining trend is also noticed in terms of extreme poverty. It went down from 34.3% in 2000 to 5.6% in 2022 (Ministry of Finance, 2023). Rural people are comparatively poorer than urban people (Bangladesh Bureau of Statistics, 2019; Appendix-1). Therefore, emphasizing rural poverty is treated as the effective mechanism to operationalize inclusive approach in development. The government targets to reduce both nominal and extreme poverty. The target emphasizes to enhance the income and social indicators.

The SSNPs have the target of getting immediate action and results for which direct benefit programmes have been initiated and implemented. Although, most of these policy interventions are politically motivated, poor people are the ultimate beneficiaries. This includes aged people, disabled citizen, widow, vulnerable women, lactating poor mothers, gypsy people, third gender, marginalized people (Ministry of Finance, 2021; Table 01; Appendix-2). In spite of overlapping of programme beneficiaries, these are believed to be effective policy initiatives for the poor (Ahmed et al., 2016; Aminuzzaman, 2000). It is found that need-based demand influenced policy makers to increase the number of beneficiaries and allocation of money. For example, the Department of Social Services has provided a capitation grant of Tk 1200 million for 100 thousand residents during 2020-2021 (Ministry of Finance, 2021).

Benefitting vulnerable women through cash incentives and food subsidy is another initiative to change the poverty state of this area in Bangladesh. It also links to empower vulnerable women and enhance the nutritional value of both mothers and a healthy generation. There is a contradictory view that empowerment may not happen with the money given by the government because of the household decision is exercised by male members of the family (Kirkwood et al., 2024). The government has a policy of distributing fortified rice under Vulnerable Women Benefit programme that has health benefit as rice is mixed with powered vitamins and minerals to meet the micronutrient requirement of vulnerable people (Ministry of Finance [MoF], 2023). There are some overlapping of programmes and beneficiaries as food and money are also given in the name of Food Friendly Program (FFP), Food for Work (Kabikha) and Taka for Work (Kabita) Programmes. The FFP was initiated in 2016 for widows, elderly, women-led families (MoF, 2023).

Poor people become poorer when they are hit by disasters. Cash benefits help these poor people to prevent further deterioration of their poverty. However, a long-term solution is required to address poverty.

Table 01: Cash Incentive Programmes under SSNPs (In Crore Taka[1])

Programmes	**2020-21**	**2022-23**
Various allowances	331917.30	41821.30
Food security and employment generation programmes	15766.90	15407.71
Stipend programmes*	4306.52	4416.96
Cash/Transfer of materials (special programmes)	25267.31	27105.80
Credit support programmes	1622.48	78.00
Assistance for special communities	625.10	690.43
Various funds and programmes	15403.28	10496.46
Ongoing development projects/programmes	11970.02	12801.61
New projects/programmes	528.00	746.46
Total	111467.00	113576.00

* This includes stipend programmes, cash/transfer of materials (special programmes)
Source: Ministry of Finance (2023)

The life expectancy of Bangladeshi people is 73 years, which is expected to increase in the future (BBS, 2019). Increased life expectancy will create another issue of aging people and dependency rate. It is calculated that the dependency rate is 9.4% in 2023 Bangladesh Bureau of Statistics (BBS) (BBS, 2023). According to BBS (2023) almost one-fourth (22%) of the total people will be dependent in 2050; that will severely impact on society and economy. With the increasing need of support to the

[1] One crore equals to 10 million. Taka (or Tk.) is Bangladesh currency that equals to 0.012 US Dollar.

aging people, Bangladesh government has enacted a law named ‘universal pension scheme (UPS)’and established Universal Pension Authority to provide pension for senior citizens of above 60 years of age which is effective from August 2023 (Government of Bangladesh [GoB], 2023a, 2023b, 2023c). Although people other than government employees have the opportunity to be included in this scheme, special emphasis has been given to extremely poor people. This initiative would prevent further deterioration of poverty.

The major areas for the government interventions include education, female education in particular, health, rural infrastructures, employment, investment and revamping industries. Keeping these in mind, the government undertakes policy interventions to fruitfully benefit the poor group. As such, the government has adopted SSNPs combining various cash incentive support for them. Based on the need and urgency, the policy initiatives attract either direct or indirect interventions. These policy initiatives such as cash incentive programmes, food subsidy primarily aim to enhance purchasing capacity by transferring cash through banking or mobile technology. These initiatives are prioritized, sector-specific, which are broadly designed and implemented under the SSNPs. Researchers and academics find the success of SSNPs (Ahmed et al., 2016; Masud-All-Kamal & Saha, 2014; Pradhan et al., 2013). It is evident that an inclusive and balancing SSNPs designed to targeting the poor is found to be the prime strategy of poverty alleviation in Bangladesh. For example, the number of cash incentive beneficiaries i.e. vulnerable women increased from 0.40 million in 1999 to 2.475 million in 2022 (Ministry of Finance). These policy strategies are the key instruments for reducing poverty and progressing socio-economic development to build an inclusive society. SSNPs encompass a range of programmes aimed at uplifting the living condition and socio-economic status of the poor. This study examines to what extent these programmes contribute to poverty reduction. Poverty remains in the rural area as the real stakeholders are not extensively studied and included, poor people are not reached out to, overlapping of beneficiaries restricts wider coverage, and nepotism of rural political elite restricts inclusion of real beneficiaries (Islam et al., 2020; Karim, 2021). Islam et al. (2020) emphasized that for building inclusive society combining policy interventions with a view to empowering and promoting socio-economic status and political inclusion are pivotal which are missing in the rural area. This study attempts to examine the success factors how the government of Bangladesh reduced poverty at Dhanabair Upazail of Tangail District. In this context, the main objective of the study is to investigate how the cash incentive and food subsidy programmes through SSNPs contribute to poverty reduction in Bangladesh with the following specific objectives:

1. To assess the numerous policy interventions such as food subsidies and cash transfer programmes, taken by the government and examine underlining reasons of undertaking these initiatives.
2. To investigate the socio-economic effects of policy drives and success factors in alleviating poverty in rural Bangladesh, at Dhanbari Upazila in particular.

2. Literature Review

The literature review is organized by discussing connection between public policy and poverty reduction initiatives, followed by definition of poverty, theories of poverty and empirical evidences from India, Thailand and China. Public policy interventions designate the behavior of some actors through undertaking purposive course of action or inaction followed by number of activities in dealing with a problem or concern (Anderson, 2015). The government undertakes numerous policy initiatives to address the problems prevailing in the country. Redistributive public policies - the government's deliberate efforts to shift allocation of resources from wealthy people to disadvantaged group - are usually adopted as social transfers to benefit the poor (Anderson, 2015).

2.1. Poverty

Poverty is one of the pressing concerns of developing countries for which governments undertake a number of policy initiatives to address this problem either through short term or long-term interventions. It refers to a state in which individuals or households lack the resources to secure a minimum standard of living, including adequate income, food, housing, education and healthcare (Kamal and Saha, 2014). The World Bank defines poverty as living on less than 2.15 dollars in 2017 a day which is also applicable for developing countries like Bangladesh (Castaneda et al., 2016; The Economic Times, 2025). Higher poverty rate greatly influences the socio-economic development and impasses the development progress of a country. Here, relative poverty is a state of lower income capacity by which it is unable to maintain the standard of living whereas absolute poverty refers to a state where individuals lack basic necessities for survival.

2.2. Growth Elasticity Theory

Growth elasticity refers to the relationship between economic outcomes and economic growth, typically measured as the responsiveness of those outcomes to changes in growth variable (Adams Jr., 2004). It is quantifiable and measured as a percentage change in an outcome such as poverty resulting from a 1% change in economic growth for example per capita income or GDP. This theory is widely used in the development economics to assess how economic growth contributes to

reducing poverty. Therefore, raising the income from the poor section of the country is an important issue in reducing poverty that can be done by improving access to education and health, increasing purchasing capacity. This is supported by the growth elasticity of poverty theory. It explains that when income inequality is low, economic growth has a stronger effect in reducing poverty that advocates raising the income of poor people (Adams Jr., 2004).

2.3. Capability Approach Theory

Amartay Sen's the capability approach focuses on individual's freedom and opportunities to lead lives they value rather than only possessing of income or resources (Frediani, 2010). The key components of this theory are functionings and capabilities (Frediani, 2010). In this theory, functionings are explained as achievement of person while capabilities are defined as the real opportunities for being healthy, educated and participating in community life and the freedom serves as the central argument to have choice and control over lives. Sen's theory emphasizes both being and having. This theory advocates expanding capabilities and choices to promote justice, equality and human dignity for all beyond just living with resources. Knecht (2012) also remarks that Sen's capability approach emphasizes the importance of expanding individuals' freedom and abilities rather than only raising income for long term sustainable solution.

2.4. Structural Transformation Theory

The structural transformation perspective of Simon Kuznets highlights that economic development involves a shift of labor and output from agriculture to industry and services (Sen, 2019). This shift is recognized as a hallmark and paradigm of development economics. When a large share of the workforce remains in agriculture, a sector characterized by low productivity and income compared with industry and services, overall economic growth tends to be limited whereas shift from labor into higher-productivity sector encourages faster growth and higher income. It is argued that both raising income and enhancing capability require structural transformation and policy support. The government's various cash incentive programmes built on these theories enable poor household to increase consumption, invest in education and health and break structural barriers. Selim and Küçükçifçi (2025) found that social transfers reduce poverty rates by improving households' purchasing power and access to opportunities. Moreover, the process of structural transformation helps raise labor productivity in the rural economy, pulling up wages and gradually eliminating the worst dimensions of absolute poverty (Timmer et al., 2008). This theory explains shifting labor and capital from low-productivity sectors into high-productivity manufacturing and services that can raise incomes and reduce poverty.

According to these theoretical underpinnings, developing and emerging countries adopt social safety net programme to benefit poor people, rural poor in particular.

2.5. Empirical Research and Best Practices

This section highlights the empirical research and best practices from poverty reduction initiatives in different countries focusing on how these efforts contributed to reducing poverty among the poor. India's policy initiatives for guaranteeing employment for the rural poor essentially contributed to poverty reduction. The Indian government enacted the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) in 2005. The MGNREA, the largest social safety net programme in the world, guaranteed 100 days of wage employment per fiscal year to rural households that boosted income, improved food security and enhanced financial inclusion (Singh and Singh, 2013). The study evidences that this policy intervention increased 10% per capita consumption among the beneficiaries. Initially the policy came into effect with 200 districts which later expanded to cover all rural districts in two years of policy initiation. Although the initiative was influenced by nepotism in beneficiary selection and political interference, it significantly contributed to reduce poverty in rural India (Singh and Singh, 2013). It is argued that increasing economic growth contributes to multidimensional poverty index. The country's social transfer policies support to empower the rural poor through institutional structure so that they can enhance their capacity and increase their income as well as consumption. Furthermore, redistributive policies through targeted rural people, regional development, employment generation among the poor ensured growth effectively translating into poverty reduction in India (Anderson, 2015; Seth and Alkire, 2021).
Targeting the rural poor, the Indian government initiated 'the Pradhan Mantri Awas Yojana' aiming at the affordable housing for the low-income households that enabled them to reduce housing costs in order to save and invest in livelihoods. In connection to this policy implementation, India adopted another policy named 'the Pradhan Mantri Jan Dhan Yojana' that ensured the poor's access to financial institutions. This inclusion empowered poor households as this system reduced anomalies and leakages in welfare distribution (Seth and Alkire, 2021). The study shows that these safety net policies meaningfully contributed to poverty reduction in India because the targeted labor, housing and financial-inclusion initiatives translated economic growth into enhancement of capability. It is revealed in the World Bank report that India lifted 170 million people out of poverty in one decade as extreme poverty declined from 16.2% in 2011-12 to 2.3% in 2022-23 (The Economic Times, 2025).

To overcome the challenges of transition from agriculture to industry and service sector and sustain its development as an emerging economy, the Thai government has adopted a number of policy initiatives with a view to enhance capability of the poor

and increase their income through structural transformation in rural areas. In connection with these poverty reduction approaches, multifaceted policy strategies have been adopted (Chougule, 2024). For example, The Universal Old Age Allowance and Non-Contributory Benefit Programme contributed to reducing poverty significantly, particularly aiding workers from rural and informal sector. Likewise, agricultural diversification, infrastructure investment in rural areas, and community economic enterprise programmes helped rural development by boosting rural livelihoods. Furthermore, the Thai government adopted a policy for community empowerment emphasizing enhancement of village funds, strengthening local governance, and building community enterprises to contribute to the rural decision-making process (Chantarasombat, 2021). These have special focus on social protection, rural development, and community empowerment. The government has expanded cash-transfer programmes for the welfare of the elderly, which helped bring the poverty rate down. Simultaneously, Thailand has popularized the 'sufficiency economy' philosophy through the creation of development zones in underprivileged and rural areas, promoting self-reliance and livelihoods (Chantarasombat, 2021; Chougule, 2024). The study of Chougule (2024) found mixed results of social protection policies adopted by the Thai government. For example, Cash Transfer programme failed to reduce monetary poverty due to a target issue while broader social policies have greater contribution in reducing poverty although the magnitude varies across types of policies (Chougule, 2024; Durongkaveroj, 2022).

China has adopted social policies incorporating growth elasticity, capability approach and structural transformation to reduce poverty and enhance rural development. A study shows that social welfare transfers in China reduced poverty by roughly 32% between 1989 and 2009 with mixed effects on income inequality (Liu, 2023; Lu et al., 2013). The introduction of the Targeted Poverty Alleviation (TPA) is termed as the significant policy initiative for poverty reduction as this covers an array of packages of minimum living allowances, health subsidies, housing support and employment. Researchers argued that these social safety net programmes helped prevent reverse poverty traps that eventually sustained the TPA programme (Liu, 2023; Lu et al., 2013). However, these programmes encounter challenges because a large informal economy often leads to long term dependency rather than exit from poverty, particularly when building capacity of poor people through employment is ignored and supported by weak strategies. This seeks attention for long term poverty reduction approach through livelihood skills, human capital investment and social inclusion instead of just social transfer. In spite of these shortcomings, social safety net programmes are recognized as key drivers for poverty reduction in China (Wang et al., 2020).

It is found that different governments utilize SSNPs and structural transformation policies to address poverty by raising incomes and enhancing capabilities. In India, rural employment, housing and financial inclusion programmes translated growth into capability enhancement; in Thailand, rural development, community empowerment and cash transfers supported raising the income, enhancing capacity and structural change; and in China, TPA packages combine income support with capacity building and rural transformation.

3. Methodology

The present study employed qualitative research methods including content analysis and interpretivism approaches. Content analysis was done following the available secondary sources including the government publications, research articles of renowned peer reviewed journals in order to assess the policy interventions and complexity of the state of poverty in Bangladesh. The data were taken from the Bangladesh Bureau of Statistics, World Bank, Bangladesh Economic Review, Ministry of Finance of Bangladesh, Annual Reports of Ministry of Women and Children Affairs and Ministry of Social Service, Bangladesh Bank (Central Bank of the country) for the authenticity and accuracy. The theoretical framework discusses the key issues of the studied subject which links to the concepts of poverty, poverty prevalence in Bangladesh and public policy interventions. This is supported by primary data so that the theoretical underpinning is assessed and aligned with the findings. The sources of primary data include beneficiaries of the government's SSNPs and the implementers of those policies at Dhanbari Upazila (Sub-district) of Tangail District. The implementers are the key informants as they are officially responsible for disbursing the money allocated by the government. It is the far-distant last Upazila of the District and one of the poverty-prone areas. The total study population under the SSNPs is more than 30000 including 51.25% women. There are three categories of research participants. The first category comprises 12 (twelve) male respondents who were direct beneficiaries. The second category includes 6 implementers including one female. They were selected purposively and interviewed based on Key Informant Interviews techniques. The researcher visited the offices of implementers and conducted interviews. Additionally, research participants were purposively selected from the list of beneficiaries provided by the Department of Social Science of the study area. The third category includes 8 (eight) female respondents who were direct beneficiaries and they were selected following the snowball technique. The researcher primarily got access to one female beneficiary through official entry and followed the technique to find more relevant and appropriate research participants. The researcher obtained assistance from the concerned government official of the Upazila to select the first interviewee who later

helped select the next. They were interviewed following an open-ended questionnaire aligned with the objectives of the study, especially their socio-economic status. Since none of them gave permission to record data, notes were taken and elaborated immediately after the interview. They were assured that no name would be written in the research. The data analysis was done following the themes derived from the contents and interviews pertaining to the objectives of the study (Creswell, 2013; Creswell & Poth, 2018). The analysis was enriched with the comments and views of primary stakeholders.

4. Analysis and Discussion

The Bangladesh government-initiated policy interventions for poverty alleviation emphasize the continuity of social spending strategy in terms of the number of beneficiaries and the amount of budget. Tax breaks and economic investment benefit poor people as investment creates job opportunity and fosters economic growth. Trickle-down theory did not reduce poverty over the year (Chowdhury, 2021). Rather, wider social spending contributes to reducing poverty, as opposed to trickle-down effects, as it directly reaches targeted poor people. Building an inclusive society with no one being left behind is the central philosophy. The contributing factors of poverty reduction include targeted group initiatives, direct cash benefits, reaching out for the poor, ICT-enabled connectivity, inclusiveness of the developmental approach, consistent policy implementation, an incremental approach in national budget, strong institutional framework combining GO-NGO collaboration and active engagement of public representative through local government bodies. These factors are discussed in the following sections.

4.1. Effectiveness of Poverty Alleviaiton Policy Initiatives

The government adopted policy initiatives including cash incentives and food subsidy which are found effective becasue of targeted approach, reaching out real stakeholder and policy continution strategies.

Target Based Initiatives: Targeting old people, the most vulnerable, was an initiative of alleviating poverty with a very few at the very beginning which gradually increased over the year (Masud & Saha, 2014; Karim, 2022c). A number of poverty alleviation initiatives have been undertaken and carried out for the socio-economic development of the rural poor during the last one decade. Poverty rate significantly decreased as it went down from 40.0 percent in 2005 to 20.5 percent in 2020 (Karim, 2021). A number of factors have contributed to claim this success including the targeted number of beneficiaries, amount of money disbursed, identification of real stakeholders and the purpose of utilizing cash incentives and food subsidy. All the

policy interventions are special programmes that specifically target groups who genuinely need assistance from the government (Appendix-2). A policy implementer mentioned,

> *"Government, at the very beginning, being politically charged and motivated by the party philosophy, continued with the programmes of targeting the poor section of the country. These are the special initiatives for the poorest group, especially vulnerable people, aged people, slum area, disabled who do not have enough money with them to lead a life."*

The target groups include rural populations, women particularly those in rural areas urban slum dwellers, urban poor women, persons with disabilities, pregnant women, widows, and families of martyrs in urgent need of financial assistance.

A beneficiary, a mother of a 6-month-old baby said,

> *"My husband is daily worker and earns little money. I receive 500 per month from the government for my new infant that is a big support for me. I can have nutritious food now."*

Apart from the benefit gained by the incumbents, almost all the allocated money is disbursed. The Cash Transfer Programme aims to transfer money to the direct beneficiaries and spend allotted money. The Women Affairs Office of the Upazila covered all beneficiaries. They also checked the conditions of spending money. Usually, women having no income cannot practice the right of spending money. However, when money is received from the government and is forced to spend for a specific purpose, it empowers them economically. Moreover, vulnerable poor people are given fortified rice that helps meet the micronutrient requirement.

Adoption of Special Mechanism of Reaching Out Poor: Identifying the problem and shortcomings of the previous system of providing benefit to the poor through local government representatives, the government changed the mechanism of reaching poor directly without the intermediate level. Several mechanisms have been utilized to connect with poor people. For example, mobile financial services or bank transfers are some of those to send allowances to the group.

Cash transferred to the poor increases the economic capacity and empowers women, adolescent girls, old people in the family (Sifat, 2021). Sending money to the poor without third party involvement through individual phone numbers helps reach

almost 95% of the beneficiaries (Ahmed et al., 2016). The government is trying to provide solutions for those who have no mobile phone.

A beneficiary of the old allowance said,

> *"I faced problem at the beginning because I did not a have a mobile phone and I had to buy it to get the government allowance. But now I feel happy when I get money from the government through my mobile number. I check many times when it comes. Now I don't need to go to Upazila for this allowance."*

Another beneficiary echoed the same thing,

> *"... usually, we used to come to office walking 5 kilometers and had to wait almost whole day. It costs 50 taka for communication and some for eating. Now I can get money through my mobile number and can draw from the nearest shop."*

Since the benefits are given directly to the individual phone number, they need not contact any person in between which is convenient to them and helps them spend more on their food. Money providing officials also underscored that they do not face gathering beneficiaries at their office premises that they faced before during the time of manual money disbursement. They also added an issue of unseen cost that the beneficiaries had to provide before the introduction of mobile transfer system. It helps to spend more money on their livelihood. Thus, cash incentives contribute to poverty reduction.

Policy Continuation and Political Stability: All policy implementers and beneficiaries emphasized that the SSNPs should be continued gradually covering all poor people. Government is continuously increasing the amount for SSNPs every year (Table 02):

Table 02: Budget Allocation for SSNPs 2015-2023

Financial Year	Total Allocation (Taka in Crore)	Percent of Budget	Percent of GDP
2015-2016	295,100.00	12.72	2.19
2016-2017	340,605.00	13.28	2.31
2017-2018	400,266.00	13.54	2.44
2018-2019	464,573.00	13.81	2.53
2019-2020	523,190.00	14.21	2.58

2020-2021	568,000.00	16.83	3.01
2021-2022	603,681.00	17.83	3.11
2022-2023	1,13,576.00	16.75	2.55

Source: Ministry of Finance (2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023)

Moreover, political stability is a strong reason to undertake and continue the policies. Most of the programmes attempt to achieve objectives of providing support to poor people which are need-based, benefit-driven and aligned with livelihood (Karim, 2022a). As such, the government followed an incremental approach to increase the budget allocation and the number of beneficiaries. Continuous increase in the number of beneficiaries and budget allocation indicate the government's priority to reduce poverty and enhance inclusive development. Policy support emphasizes social dimension in order to get the sustainable solution for poverty. Most of the programmes were initiated in 2008 and continued.

Total of 7 out of 8 female beneficiaries informed that cash incentives helped them to buy foods because of the preconditions of getting monetary assistance. Money providing officials of the concerned government offices encourage people to buy nutritious food. The Upazila Women Affairs Officer said,

> *"As a responsible person, I disburse allowances for pregnant mothers, vulnerable women, adolescent girls, special assistance for women clubs. I find that the government is extending the programme with the number of beneficiaries increased and the amount of annual budget increased. I have also noticed that the government has initiated a new special programme considering women's development and empowerment."*

A chairman of a union parishad, who has been holding this position two terms, reiterated the same as the Women Affairs Officer:

> *"What I have noticed, that more vulnerable people are getting benefits from the government. I have included new people almost every year and I get support from Women Affairs Office, the UNO office and Social Service Department. I believe my government is doing a great job for the poor."*

Disbursing financial and non-financial benefits that increase every year, through various SSNPs has become one of the major tasks of nation building departments at Upazila Level.

4.2. Policy Drives in Reducing Poverty and Improving Socio-Economic Conditon

The government adopted policies are successful because of long-term intervenion, inclusive approach, and adoption of structrual framework. These helped enhance the capability of the poor.

Long-Term Intervention: Poverty alleviating programmes are effective for immediate solutions as these are taken primarily to meet their basic needs. These initiatives linked to healthcare of lactating mothers and infants, education allowance for female students, employment opportunity for vulnerable women, 30kg rice supply to widows and vulnerable women are believed to have a long-term impact on poverty alleviation. Moreover, uninterrupted power supply facilitating development initiatives contributes to the rural economy particularly for running small business, and developing entrepreneurial activities (Aminuzzaman, 2000). Maclay and Marsden (2013) argued that cash incentive programmes contribute to prioritizing immediate needs and help intergenerational transfer. It is an indirect approach to long-term investment in building a sustainable society.

Inclusive Developmental Approach and Constitutional Obligation: Inclusiveness approach in planning and implementation stages is termed as the fundamental approach of poverty alleviation initiative. The study found that the government's targets cover all sections of the vulnerable people, irrespective of class, race, ethnicity, gender and geography. Based on the philosophy of SDG and the Constitution of Bangladesh, poverty alleviation policy initiatives have been undertaken and implemented (GoB, 2012). The Chief Executive of the Upazila cited,

> *"Government initiatives cover wide range of beneficiaries so that poorest of the poor group is not kept out of the bracket. Poor, slum, women, disabled, old, widow are under the programmes."*

Social Service Department Head's words are an echo of the same:

> *"We have now almost 30 programmes, most of them are cash transfer programmes aiming to benefit various types of beneficiaries and every year we are expanding the coverage, particularly for the old age allowance because of the increase of aged people."*

Creation of the Institutional Framework and the Stakeholder Network*:* Bangladesh, having long experience of fighting poverty and implementing target-based programmes, has already successfully developed the institutional framework to work with poverty-solution strategies and interventions (Aminuzzaman, 2000). The relevant ministries such as the Ministry of Finance, the Prime Minister's Office, the Ministry of Social Welfare, Ministry of Women and Children Affairs, Ministry of Disaster Management and Relief, Department of Women and Children Affairs, Department of Youth Development and Department of Social Services are actively involved in formulating, implementing and evaluating policy initiatives. Enactment of the Universal Pension Act, rules and authority in 2023 in a short period of time demonstrates the government's goodwill and vision in building an inclusive society by bracketing those vulnerable people under one safe and secure umbrella (GoB, 2023a, 2023b, 2023c; Appendix-3). The local government institutions are also significant stakeholders for effective implementation of policy initiatives. Moreover, policy implementation is strongly supported by international and local development partners (Wahid, 1994).

The local NGOs such as Brac, ASA, Grameen Bank, Shakti Foundation, BURO Bangladesh, TMSS, Proshika, Caritas, Society for Social Services run microcredit programmes for self-employment of poor and distress women and work for poverty alleviation, education and health (Ministry of Finance, 2023). For establishing permanent institutional framework, the government set-up a Rural Development and Poverty Alleviation Academy (Ministry of Finance, 2023). It is a continuation of establishing public institutions that would work for alleviating rural poverty through action research. Bangladesh Academy of Rural Development, Rural Development Academy, Bangladesh Rural Development Board, Palli Karma Sahayak Foundation are noteworthy for their continuous contribution in the sharp decline in poverty rate in Bangladesh. An Upazila Nirbahi Officer (UNO) remarks that,

> *"I am working here for about six months; I have also experience in local administration in one district. My experience is that we are working with more initiatives and it is increasing. As UNO we have to coordinate and implement the Cabinet's instruction, the number of beneficiaries and programmes are not only higher, all programmes are digitally mapped which also brings all relevant stakeholders under one framework. The government is trying to bring all SSNPs under one umbrella to avoid overlapped beneficiaries and to ensure smooth implementation."*

Education and employment: Education is an investment for employment to earn and contribute to advance the livelihood. It has a direct and indirect effect on poverty alleviation. Thus, the government increased budget allocation for education every year. Although high income people get more benefit from the allocation, poor also benefits from the government fund, especially from the sectoral allocation (Karim, 2015; Karim, 2021; Karim, 2022c). Policy intervention forced to increase net enrollment rate to more than 15% at primary school level and 17% at secondary school level in 15 years from 2000 to 2015. It is found that special emphasis was given to female students, as this section is comparatively backward. The support was a joint effort by public policy and national and international NGOs. Researchers reveal that Bangladesh achieved gender parity in terms of school enrolment of girls at schools as it reached to nearly 6.4 million girls in secondary school in 2015 (BBS, 2019). This success is supported by the special policy initiatives of the stipdent programes for poor girls. In addition, school enrolment helped stop or reduce child marriage.

Healthcare service: Health is one of the indicators where the government has made remarkable progress; f or example, lower maternity rate, lower death rate, lower death rate at birth, Ante Natal Care for pregnant mothers, nutrition support and so on (Aminuzzaman, 2000). World Bank has also assisted the government for the improvement healthcare services. Some NGOs have thus taken special initiatives for improvement of healthcare facility in Bangladesh. With the financial and technical support of the World Bank, the Bangladesh government undertook Health Nutrition Population (HNP) sector programme during 2017-2022 to strengthen health system governance, management and service delivery capacities, and implementation of essential services package (Karim, 2022c).

Rural infrastructure and connectivity: The government of Bangladesh has intervened in constructing and repairing roads and bridges, dredging waterways, and providing clean water support. It is found that 800 km of new roads were paved, 4,500 km rural roads in 26 districts were maintained and 47 km of rural waterways were dredged (Aminuzzaman, 2000). Road safety engineering measures are implemented, and community road safety awareness-building campaign is ongoing (Karim, 2022b). Additionally, 1.1 million people have been assured of access to clean water in rural areas. In order to provide access to school and healthcare facilities for the rural people, the poor in particular, IDA supportive projects play an important role in reducing transport costs and less commute time, increasing rural non-farm incomes, and creating jobs for both women and men (Karim, 2022c). These initiatives ultimately contribute to reducing poverty in the long run and improve livelihood including the poor section of the studied area.

Power supply and rural electrification: Bangladesh is an emerging and miracle economy where development of energy, particularly uninterrupted power supply, serves as the basis. Not only industries, but people in general also get the benefit from it. Primarily, rural areas were not covered due to the shortage. However, special intervention of producing sufficient electricity following various mechanism and special initiative of rural electrification boost the rural development and contributes to alleviating poverty (Karim, 2022c). Because of the power supply, a number of new jobs have been created. This opportunity enhances education and studying culture for longer period in rural areas.

Climate change, adaptation and mitigation: Poor and marginalized people are thought to be the worst victims of climate change, the Dhanbari Upazila. It is believed that these support schemes have significantly reduced the impact of recent storms, cyclones, and floods in terms of numbers of deaths and economic losses of the poor community (Morshed et al., 2025).

Local governance and political culture: Government's interventions are being taken based on needs of the citizen particularly at the rural level where local government plays an important role in selection of real beneficiaries and implementation of the programmes. Strengthening the local government and enhancing political leadership is an emphasized area of the government and donor agencies. As Union Parishads, the lowest tier of the local government, has the authority of decision making, planning and spending. Assistance from government or other international and national organizations helps strengthen them. This assistance enormously benefits rural women contributing to women empowerment and development and develop socio-economic status of the rural area. Besides, a significant number of poor people engage in government-initiated programmes for temporary employment. Ministry of Disaster Management and Relief is also involved in rural infrastructure and renovation with their 'Taka for Work' and 'Food for Work' (MoF, 2023; MSW, 2023). A significant number of poor people in Dhanbari Upazila are covered by these programmes.

5. Conclusion and Recommendations

The government sets a target to reduce poverty for which several policy initiatives were undertaken. These initiatives include mainly cash incentives through various programmes, income-generating activities, continuous cash flow, targeted group bracketing under the name of different titles. Poor people were the direct beneficiaries while government institutions are responsible for implementing these programmes. Introduction of ICT-enabled service dramatically enhanced the services. As a result,

the declined trend of poverty rate in Bangladesh halved. Strategic policy interventions serve as the key factor of success in alleviating poverty. Because of the financial and non-financial support through policy intervention, socio-economic condition of poor people including women also enhanced. This brings positive benefit to the poor people of Dhanbari Upazila as number of SSNPs are adopted and number of poor people have been covered. However, the study recommends the following theoretical and policy implications for long-term benefits.

5.1. Theoretical Implications

The SSNPs have great theoretical implications in Bangladesh. These suggest that social policy functions as both redistribute and productive instrument. These programmes align with the social spending theory of redistributing income to vulnerable groups while simultaneously enhancing human capabilities through improved access to food, nutrition, education and healthcare. This means policy initiatives help addressing transitional rather than structural poverty in Bangladesh. This perspective is consistent with Sen's capability approach which conceptualises poverty as deprivation of essential capabilities rather than the income alone. Additionally, SSNPs support income elasticity theory, which posits that increases in household income contribute to proportional reductions in poverty rate. Targeted interventions of SSNPs also reflect principles of institutional and structural transformation frameworks emphasising policy continuity, rural inclusion and the expansion of productive capacities through employment generation, infrastructural development, human capital investment to enable sustained poverty reduction system.

5.2. Practical Implications

Social safety-net programmes in Bangladesh have tangible implications for poverty alleviation, particularly the cash incentive programmes that enhance purchasing capacity of poor households and help them cope with the rising living costs. These social transfers also contribute to the empowerment of women and marginalized groups. Moreover, policy initiatives have broader social implications, as they promote inclusive development. However, SSNPs can also serve political interests, as the government may expand beneficiary coverage to strengthen electoral support.

Addressing overlapping beneficiaries and enhancing coverage: The government can reduce overlaps among the beneficiaries of various SSNPs by maintaining a centralized database linked to the national identification card. This database should be managed through integrated software under the Ministry of Finance and used by all implementing departments. Additionally, the government should also increase budget allocation for SSNPs to expand beneficiary coverage, as poverty has risen due

to the combined impacts of COVID-19, the Russia-Ukraine war and the ongoing political crisis.

6. Limitations and Further Research

This study is limited to one specific area of Bangladesh and focuses solely on government initiated cash and food subsidy programmes. Other initiatives, such as those implemented by non-governmental organisations for inclusive development are not focused. This study recommends conducting a quantitative study in the rural area to validate the research findings and utilize the findings in future policy decision for long-term interventions.

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Appendix-1: Poverty Trend in Bangladesh

	2022	2016	Annual Change (%) (2016 to 2022)	2010	Annual Change (%) (2010 to 2016)	2005	Annual Change (%) (2005 to 2010)
Poverty Head Count Index							
National	18.7	24.3	-4.27	31.5	-4.23	40.0	-4.67
Urban	14.7	18.9	-4.10	21.3	-1,97	28.4	-5.59
Rural	20.5	26.4	-4.13	35.2	-4.68	43.8	-4.28
Poverty Gap							
National	3.8	5.0	-4.47	6.5	-4.28	9.0	-6.30
Urban	2.9	3.9	-4.82	4.3	-1.61	6.5	-7.93
Rural	4.2	5.4	-4.10	7.4	-5.12	9.8	-5.46
Squared Poverty							
National	1.2	1.5	-3.65	2.0	-4.68	2.9	-7.16
Urban	0.9	1.2	-4.68	1.3	-1.33	2.1	-9.15
Rural	1.3	1.7	-4.37	2.2	-4.21	3.1	-6.63

Source: BBS (2024)

Appendix-2: List of Targeted Groups

1. Old aged people
2. Widow deserted by husband
3. Transgender (Hizra)
4. Disabled people
5. Disabled students
6. Vulnerable women
7. Poor adolescent
8. Working lactating mothers
9. Poor mothers
10. Gypsy community
11. Freedom fighters
12. Wounded freedom fighters
13. Unemployed youths
14. Poor female students
15. Backward Community
16. Urban poor
17. Day laborer, rikshawpuller
18. Poor fishermen
19. Monga-affected people
20. Homeless people
21. People affected by river erosion
22. People affected by climate change and disaster
23. Climate refugee
24. Rural unemployed people
25. Low income people affected by COVID-19 and restrictions

Appendix-3: List of Government, Non-Government Organisaitons Linked to Poverty Alleviation Programmes

1. Prime Minister's Office
2. Ministry of Finance
3. Ministry of Women and Children Affairs
4. Ministry of Disaster Management and Relief
5. Ministry of Food
6. Rural Development & Cooperative Division
7. Ministry of Youths and Sports
8. Ministry of Liberation War Affairs
9. Ministry of Industries
10. Ministry of Textiles and Jute
11. Ministry of Agriculture

12. Department of Social Service
13. Department of Women Affairs
14. Department of Co-operatives
15. Department of Disaster Management
16. Commercial banks (Sonali, Agrani, Janata, Rupali, Bangladesh Krishi Bank, Rajshahi Krishi Unnayan Bank)
17. Commercial and Specialized banks (Ansar-VDP Unnayan Bank, National Bank, Social Islami Bank, Uttara Bank, Basic Bank, Islami Bank Bangladesh, Karmasangsthan Bank, Bangladesh Bank)
18. Microcredit Regulatory Authority
19. Palli Karma Sahayak Foundation
20. Small Farmers Development Foundation
21. Rural Development Academy
22. Bangladesh Academy of Rural Development
23. Bangabandhu Academy of Poverty Alleviation and Rural Development
24. Palli Daridro Bimochon Foundation
25. Grameen Bank
26. Association of Social Advancement (ASA)
27. BRAC
28. BURO Bangladesh
29. Caritas
30. Shakti Foundation

Determinants of Organic Fertilizer Usage in the Post-Chemical Fertilizer Ban Period: Evidence from Mihinthale Divisional Secretariat, Sri Lanka

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Abstract

The use of organic fertilizers in agriculture has gained attention as a means of managing waste Organic farming is considered as an environmentally friendly agricultural practice since the heavy use of chemical fertilizer has been considered unhealthy for the environment. After the ban on importing chemical fertilizer by the government of Sri Lanka in 2021, the use of organic fertilizer has received extra attention in the country. In this context, the main purpose of this study is to examine the significant factors affecting the usage of organic fertilizers in Sri Lanka. A survey was conducted with a large sample based on the Mihinthale Divisional Secretariat in the Anuradhapura District which has about 4,169 farmers. A sample of 834 farmers were selected randomly among six Grama Niladhari Divisions based on the convenient sampling method. Data were collected using a structured questionnaire administered by two research assistants and analyzed using descriptive and inferential statistics. The study identified that waste management strategy, economic benefit, perceived health consciousness, practicing sustainable agriculture, and self-satisfaction significantly influence the usage of organic fertilizer in the Mihinthale Divisional Secretariat, Anuradhapura District. The findings of the study will help to improve the usage of organic fertilizer in Sri Lanka and contribute to designing sustainable agricultural policies locally and globally.

Keywords: Chemical Fertilizer, Determinants, Fertilizer Ban, Mihinthale Divisional Secretariat, Organic Fertilizer, Sri Lanka

1. Introduction

1.1. Background of Study

The usage of inorganic fertilizers in agriculture has led to myriad problems beyond economic consideration. Synthetic fertilizer usage in agriculture is often regarded as a problematic decision economically (Mahdi et al., 2010), socially (Serpil, 2012),

environmentally (Mahdi et al., 2010), and health-wise (Channa et al., 2011). When society became distracted from the importance of organic manure, it was discovered that soluble acidic-based Nitrogen, Phosphorus, and Potassium (N, P, K) were "fertilizers" for agriculture. With that, large industrial concerns started taking advantage of the N, P, K discovery to artificially prepare and market their industrially processed "fertilizers" which causes serious sociological, and ecological problems and harming sustainability as well (Pettit, 2008). The environmental impacts associated with synthetic fertilizer include water pollution, destruction of micro-organisms and friendly insects, crop susceptibility to disease attack, and reduction in soil fertility (Mahdi et al., 2010). However, Rodrigo (2014) suggests that the fertilizer subsidy should be reduced in several stages by gradually introducing organic fertilizers (Rodrigo,2014). In discussing its implementation in the real world, concerns about financial burden and negative environmental externalities along with food security concerns led the government of Sri Lanka to cut down the fertilizer subsidy by 25% in the 2012-2013 budget as per the aim of encouraging the farmers to use more organic fertilizers (Ministry of Finance and Planning-2012 cited in Rodrigo & Abeysekara, 2015).

Chemical fertilizers affect in the facets of water pollution, soil pollution, and air pollution (Serpil, 2012). The excessive Nitrogen fertilizing rates in the Nile Valley flood plains are likely the main causes of water contamination (Shamrukh, et al., 2001). A few centuries ago, local farmers were able to produce rice to feed the whole nation with the use of traditional pest control methods and fertilizers, in growing and securing their plants instead of pumping them with numerous chemicals. This study is of timely importance to farmers in Sri Lanka to reconsider their approach to fertilization techniques by giving higher priority to organic fertilizers. According to a survey conducted by the Research Institute of Organic Agriculture FiBL on certified organic agriculture worldwide, as at the end of 2015, organic agriculture was practiced in 179 countries, which was 172 in 2014 (Food and Agriculture Organization of the United Nations, 2015). Considering the Asian context, the total area dedicated to organic agriculture was almost four million hectares in the year 2015 in which there were more than 0.8 million producers (Willer & Lernoud, 2017). When compared to the world and the Asian context in the organic food industry, the level of organic agriculture in Sri Lanka stands far behind. Area-wise organic agricultural land (including in-conversion areas) in Sri Lanka in 2015 was 963.18 square kilometers (Willer & Lernoud, 2017).

The value of organic fertilizers in agriculture involves numerous benefits to human beings, the environment as well as the economy. Cost reduction (Food and Agriculture Organization of the United Nations, 2015), improving soil fertility (Chen,

2006; Food and Agriculture Organization of the United Nations, 2015), increasing soil water retention (Mahdi et al., 2010), sustainable crop production, improving soil productivity (Food and Agriculture Organization of the United Nations, 2015), and especially ensuring the protection of several probable diseases that may arise from chemical fertilizer usage (Chen, 2006) are some benefits behind the organic fertilizer usage.

Literature highlights the importance of organic fertilizer usage in agriculture in various aspects where the environmental aspect is frequently addressed. Literature on organic fertilizer usage displays a wide array of environmental benefits. The application of organic fertilizer enables soil fertility to improve by fixing atmospheric nitrogen, both, in association with plant roots and without it, and also solubilizes insoluble soil phosphates further producing plant growth substances in the soil (Mahdi et al., 2010). This results in the enhancement of soil biological activity which improves nutrient mobilization from organic and chemical sources and the decomposition of toxic substances (Food and Agriculture Organization of the United Nations, 2015). Moreover, as per Chen (2006) organic fertilizers suppress certain plant diseases, soil-borne diseases, and parasites while a more balanced nutrient supply of organic fertilizers helps to keep plants healthy. In the continuation crop residues can be composted and applied in their soils for an increased sustainable crop production (Food and Agriculture Organization of the United Nations, 2015). In this way, soil fertility can be improved with a net improvement in land productivity.

1.2. Problem Identification

The discussion on increasing the usage of organic fertilizer has come to face with the government's decision to ban the usage of chemical fertilizers. A survey by Bandara et al. (2023) showed that before the ban only 13% of paddy farmers were using organic fertilizer, but after the ban this percentage increased to 89%.

It has been considered that chemical fertilizers generate many negative social and ecological impacts while harming sustainability. According to the Ministry of Agriculture, the excessive use of chemical fertilizer has led to blue childbirths while medical surveys reveal that thirty blind child births are reported per month in Sri Lanka, and the number of kidney and cancer patients is on the increase (Fonseka, 2021). The use of synthetic fertilizers incurs a huge cost (Rodrigo & Abeysekara, 2015) for the country, and it causes a pool of diseases like premature deaths (Wimalawansa, 2015). Tons of pesticides are used in Sri Lanka for the last 20-25 years: diseases such as kidney diseases, heart diseases, diabetes, and cancer have become common in Sri Lanka, and the government has to allocate a substantial amount of money for their medication as well (Channa et al., 2011; Wimalawansa, 2015).

Moreover, Kashi (2017) declares that Sri Lankan farmers started experiencing chronic kidney disease (CKD), fifteen to twenty years after introducing glyphosate to Sri Lanka. Further, the study states that the addition of residues of heavy metals, especially cadmium, lead, and arsenic into the water, and soil has been claimed as contributing factors to CKD. Consistent with the findings of Kashi (2017) and Channa et al. (2011) the authors state that agrochemicals as one of the major causes of chronic kidney diseases in Sri Lanka. The incidence of CKD has become a prominent issue in Sri Lanka which doubles every four to five years, with more than 5,000 deaths annually, and more than 150,000 people being currently affected by this kidney disease (Wimalawansa, 2015). Hence research on the use of organic fertilizers as an alternative to synthetic fertilizers has become essential.

Governments have decided to prohibit the import of chemical fertilizers to reduce negative health effects and save 400 million dollars a year spent on imports of chemical fertilizers (Hamza, 2021).

Although the previous government's decision aimed to reduce chemical usage in agriculture, severe criticisms were leveled at the decision as it was taken 'overnight'. The main criticism was that this kind of decision needs more feasible study before the implementation. Rapid adoption of organic farming in Sri Lanka exposed considerable difficulties and shortcomings in executing the policy at a national level (Stifel, 2025). Soon after the decision, many disputes from farmers were created because of the lack of fertilizers for agricultural activities of the Yala season. The production of organic fertilizer needed for all crops may not be possible at once, and it could take a considerable time to produce the necessary quantities (Fonseka, 2021). Also the author noted that availability of fertilizer in the markets and the financial resources of farmers also influence the purchase of the fertilizer. As a solution, the government has introduced fertilizer subsidies (distributed fertilizer at a cheaper price), farmers were not aware of how to use it sparingly.

Despite the several researches conducted on organic fertilizer usage in Sri Lanka, most have considered only its impact. of organic fertilizer usage. Also, many have disregarded discussing municipal solid waste management as a national-level problem, and researchers have hardly touched on the possibility of implementing composting as a waste management program that may help to reduce the usage of synthetic fertilizer. Further, with the global trend towards sustainability, composing programs have earned a special interest in Sri Lanka too. Identifying the gap, the main focus of this study is to examine the factors affecting organic fertilizer usage in Sri Lanka. In this context, this research attempts to address the research question given below: What are the factors affecting usage of organic fertilizers in agriculture?

2. Literature Review

2.1. Fertilizers

Fertilizer is an essential input in agriculture aiming at improving the productivity and designed to supplement the nutrients already present in the soil (Chen, 2006).

Inorganic fertilizer is considered one of the few agricultural technologies which have enormous potential in raising the productivity of poor smallholder farmers while also contributing in increasing income, accumulating assets, and empowering themselves economically (Benson et al., 2012). In the Sri Lankan context, the fertilizer subsidy accounts for all three major fertilizers Urea, Muriate of Potash (MOP), and Triple Super Phosphate (TSP). Organic fertilizers refer to the materials derived that are essentially carbon in nature using plant, animal, or their byproducts, and which will ultimately be beneficial to plants, and soil by improving the water holding capacity. The European Consortium of the Organic Based Fertilizer Industry states organic fertilizers are diverse formulations of products that plants with nutrients and/or expand organic matter in the soil.

As a global trend toward sustainability, farming gets the involvement of organic fertilizers in agriculture. Ha, Fernando and Mahajan (2019) emphasize the need to discourage chemical fertilizers and at the same time promote organic fertilizers as a healthy and eco-friendly decision. In Sri Lanka, Gliricidiya (*Gliricidia sepium*), a plant with preferable organic characteristics, could be used as a better naturally available alternative to such organic fertilizers used in India (Gunadasa, 2017). It is a commonly grown plant in both the countryside and urban areas. By adding the Gliricidiya leaves to the field, it enhances the carbonic content by 40%, accelerating the functioning of microorganisms while enhancing the wetness of the soil by 50% (Abeygunawardana, 2018). Moreover, Gliricidiya ensures the soil's ability to absorb rainwater (Gunadasa, 2017). Application of such methods would be an eco-friendly initiation for the agriculture system of Sri Lanka.

2.2. Theories

The theory of Planned Behavior, Normative Activation Theory (NAT) and Ecological Modernization Theory are used to explain farmers' behavior and other related factors in using organic fertilizer.

2.2.1. Theory of Planned Behavior (TPB)

The TPB could be used to explain factors influencing the farmers' behavior (Lapple & Kelley, 2013 as cited in Yanakittkul, & Aungvaravong, 2020). The TPB considers three factors which include, attitudes toward behavior, subjective norms, and perceived behavior control, which influence the intention toward the use of organic

fertilizer (Lapple & Kelley, 2013 cited in Yanakittkul, & Aungvaravong, 2020). The attitudes toward farming behavior refer to the concept that a farmer who has a positive attitude toward farming behavior will intend to perform that behavior (Yanakittkul & Aungvaravong, 2020). Furthermore, if a farmer perceives reference group-norms which reflect social pressures and values these expectations positively, the behavior will be encouraged. Perceived behavior control towards farming behaviour is used to assess a farmer's ability to perform actions they can control, based on their intentions for farming (Ajzen, 1991; Yanakittkul & Aungvaravong, 2020).

2.2.2. Normative Activation Theory (NAT)

The Normative Activation Theory (NAT) was developed by Schwartz in 1977 (cited in Xie, 2021) explained how personal norms are activated to guide behaviors. The theory has two factors namely situation and personality. Situational factors are awareness of consequences, responsibility, and perceived ability to act whereas personality factors are awareness of the impacts of action or inaction and personal responsibility. These factors influence personal norms, which then drive pro-social behaviors like recycling, sustainable transportation, or ethical decision-making" (Xie, 2021). The theory is in alignment with organic farmers' behaviors which leads to their norms in a positive way for the environmental protection that promotes sustainable agriculture. Furthermore, the theory explains "awareness of consequences and ascription of responsibility have a significant positive impact on farmers' behavior, which promote the utilization of organic fertilizers" (Xie, 2021).

2.3. Empirical study

2.3.1. Determinants of the usage of organic fertilizer

Organic fertilizers have gained attention due to many reasons such as the need for a sink to dispose of the generated waste, to reduce soil exposure to soil degradation, and the negative effects of commercial chemical fertilizers (Quynh, 2018). Economic, social, marketing, cultivation, and government influences the practice of organic farming (India et al., 2019). Further the authors noted that raising awareness and market demand will increase organic production.

Mahdi et al. (2010) explore the facts of opting for bio-fertilizers the means of negatives of synthetic fertilizers, and the positives of bio-fertilizers and noted that the use of synthetic fertilizers as a point leading to a variety of disadvantages including contamination of soil, water pollution, distortion of micro-organisms, leaving plants more prone to diseases, and reduction in soil fertility. At the same time, bio-fertilizers are introduced as a fertilizer with higher demand than that of its availability, along with the high price of synthetic fertilizers, which is unaffordable for small and marginal farmers and depletion of soil fertility, concern about environmental hazards, and sustainable agriculture (Mahdi et al., 2010).

Converting solid organic materials into organic fertilizers as a means of managing organic waste which helps to solve the problem of waste disposal (Wu et al., 2014). Composting is a solution for gradually rising solid waste disposal in urban spaces and an inexpensive alternative to organic fertilizers (Quynh, 2018). Regardless of its importance in economic terms, the consistent addition of organic waste as municipal waste and crop residues make an important contribution to maintaining the fertility, soil health, and productivity of agricultural soil (Tandon, 1999 cited in Mahdi et al., 2010). Saat (2013) revealed that developed countries generate more waste and use high-tech recycling in treating waste while developing countries produce more organic waste and less recyclable waste. In such a situation Sri Lanka would have a long way to proceed in organic fertilizer production and usage.

Wu et al. (2014) point out inorganic fertilizers as a high-cost solution, with their lack of availability in the market causing competitive farmers to fail in applying the inorganic fertilizers to the crop field at the optimum time. On the contrary, the study identifies organic fertilizers as comparatively low-cost, easily available alternatives to solving the garbage disposal problem also at the same time (Mahdi et al., 2010; Wu et al., 2014).

Government support in terms of resources, credit, markets, and subsidies helps promote organic farming. Therefore, extension agents, farm groups, and the government play key roles in the adoption of organic farming (Sapbamrer & Thammachai, 2021). Training programs organized by academic institutions, non-governmental organizations, or government bodies assist farmers in learning the methods and techniques needed for organic farming (Karki et al., 2011; Thapa & Rattanasuteerakul, 2011; Sriwichailamphan & Sucharidtham, 2014; Singh et al., 2015; Kerdsriserm et al., 2016; Lopez et al., 2005 cited in Sapbamrer & Thammachai, 2021).

Due to the harmful impacts of chemical inputs in conventional farming on human health, farmers have shifted toward organic farming (Cukur et al., 2019). Similarly, health and environmental awareness influence farmers to switch to organic farming (Karki et al., 2011. Consumers have accepted organic products, as they believe that organic products are better in terms of health and environmental impacts than conventional farming (Sapbamrer & Thammachai, 2021; Smith & Paladino, 2010). Organic foods are considered as healthier, safer, tastier, and higher in quality than conventional foods (Magnusson et al., 2001; Michaelidou & Hassan, 2008). Consumers are willing to pay more on organic foods because they perceive them as healthier and more nutritious (Winter & Davis, 2006). Several research noted that organically produced foods have a nutrient composition superior to that of

conventional foods (Worthington, 2001; Magkos et al., 2003). However, this finding was found to be inconsistent as well (Bourn & Prescott, 2002).

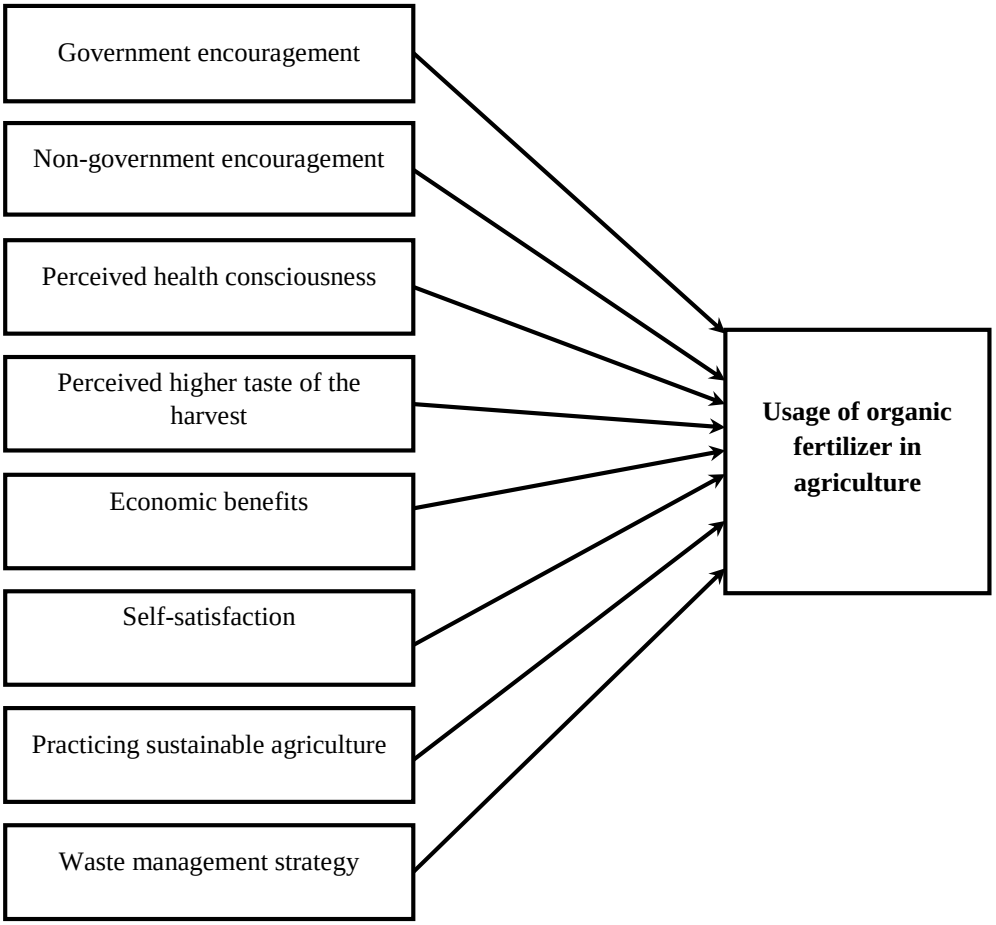
Economic and environmental factors significantly influenced farmers' adoption of organic farming (Azam & Shaheen, 2019). Hence, it can be argued that economic benefits influence the encouragement of organic farming (Mahdi et al., 2010; Wu et al., 2014; Quynh, 2018).

Organic farmers experience more life satisfaction and job satisfaction than conventional farmers (Mzoughi, 2014). Furthermore, this positive relationship applies to both recently and earlier-converted farmers, with subjective well-being positively related to income, profitability, job satisfaction, social recognition, and health (Mzoughi, 2014). Farmers' satisfaction has increased during the conversion to organic farming (Bouttes et al., 2020).

Long-term use of bio-fertilizers is considered eco-friendly, efficient, and productive, and more accessible than chemical fertilizers for small-scale farmers (Venkataraman & Shanmugasundaram, 1992, as cited in Mahdi et al., 2010). Also, the concern about sustainable agriculture, environmental hazard, and the productivity of land has led the farmers to use organic fertilizers (Mahdi et al., 2010; Wu et al., 2014).

Based on the literature review, significant factors affecting the usage of organic fertilizer have been hypothesized and illustrated in the conceptual framework in Figure 01.

Figure 01: Conceptual Framework Explaining Factors Affecting Using Organic Fertilizers in Agriculture



Source: Based on Literature Review and Field Data

Hypothesis Development

Based on the conceptual framework, the following main hypotheses were derived to explain the determinants of the usage of organic fertilizer in agriculture.

H1: Government encouragement significantly influences the usage of organic fertilizer in agriculture.

H2: Non-government encouragement significantly influences the usage of organic fertilizer in agriculture.

H3: Perceived health consciousness significantly influences the usage of organic fertilizer in agriculture.

H4: Perceived higher taste of the harvest significantly influences the usage of organic fertilizer in agriculture.

H5: Economic benefits significantly influence the usage of organic fertilizer in agriculture.

H6: Self-satisfaction significantly influences the usage of organic fertilizer in agriculture.

H7: Practicing sustainable agriculture significantly influences the usage of organic fertilizer in agriculture.

H8: Waste management strategy significantly influences the usage of organic fertilizer in agriculture.

3. Methodology

A survey was conducted to identify the significant factors affecting the usage of organic fertilizer in agriculture. The study area is based on the Mihinthale Divisional Secretariat in the Anuradhapura District in Sri Lanka. The population of the study is 4,169 general farmers in the Mihinthale Divisional Secretariat in the Anuradhapura District in Sri Lanka. The sample selected was 834 general farmers from the Mihinthale Divisional secretariat who are representing 20 percent of the population. The sample was selected based on the Grama Niladari Divisions of the Mihinthale Divisional Secretariat in Anuradhapura District. Out of all twenty-five Grama Niladari Divisions (GND) of the Mihinthale Divisional Secretariat, 24 percent of Grama Niladari Divisions were selected based on the convenient sampling method. These GNDs are Maradankalla, Doramadalawa, Pothana, Ihalagama, Wellaragama and Kannattiya. A sample of 834 farmers was selected randomly among these six GNDs.

The data was collected using a structured questionnaire administered with the assistance of two research assistants and several enumerators. The data were analyzed using both descriptive statistics and inferential statistics such as correlation analysis and regression analysis.

4. Analysis and Discussion

4.1. Analysis of Demographic Variables

Among the total of 834 farmers, the majority were female (53.84%) and the rest of the sample was male (46.16%). Majority of the families (55.3%) in the sample have three to four members, while 19.1% which is the lowest percentage, have more than

four members in the family. In addition, about 25.7% of families have one to two members. The main source of the sample is farming or cultivation (62.6%), and 28.5% have an occupation. While 8% are self-employed, 0.8% are already retired. The farmers' main source of income is also farming or cultivation (44.8%). About 23.6% of families earn Rs. 100,000 or below, and 21% of respondents' annual income between Rs. 100,001 -200,000. About 14.1% of the families' annual income belongs to Rs. 300,001 – 400,000 and Rs. 500,001 or above level. About 35% use both organic and chemical fertilizers for the same crop. About 28% of the respondents are using only organic fertilizers to cultivate and the lowest percentage of respondents use only chemical fertilizers (1.8%). The majority of the respondents cultivate vegetables using organic fertilizers (43.6%) and some families do paddy cultivation (24.3%) and Chena cultivation (4.4%) and fruits (1.4%) by using only organic fertilizers. The majority of farmers cultivate crops of less than one acres (54.2%) by only using organic fertilizers. About 32.9% of the farmers cultivate crops in one to two arces, 9.7% of the farmers cultivate crops in three to four acres and 2.5% of farmers cultivate in five or more acres by using only organic fertilizers. The majority which is 79.5% of farmers have been using organic fertilizers for less than 01year. There are 14.9% farmers from one to two years, and 3.6% of farmers from three to four years using organic fertilizers. However, the farmers who started using organic fertilizers about 05 years ago or more have the least percentage (2%). The majority of respondents who engage in farming or cultivation earn comparatively lower income levels (Rs. 100,000 or below annual income) than those who have an occupation, doing business/self-employed, or retired.

Table 01: Demographic Variables of the study (N=834)

Variable	**Count/Frequency**	**Percentage (%)**
Gender		
• Female	449	53.84
• Male	385	46.16
Number of members in the family		
• 1 to 2	214	25.7
• 3 to 4	461	55.3
• 5 or above	159	19.1
Main income source		
• Farming or cultivation	522	62.6
• Occupation/Doing a job	238	28.5
• Business or Self- employed	67	8.0
• Other – Retired	7	0.8

Other income sources		
● Business or Self-employment	89	10.7
● Farming or Cultivation	374	44.8
● More than one source of income	12	1.4
● No other income source	302	36.2
● Occupation/Doing a job	57	6.8
The annual income of the family (Rs.)		
● 100,000 or below	197	23.6
● 100,001 - 200,000	175	21.0
● 200,001 - 300,000	147	17.6
● 300,001 - 400,000	118	14.1
● 400,001 - 500,000	79	9.5
● 500,001 or above	118	14.1
Cultivation method		
● Use both organic and chemical fertilizers for different crops	293	35.1
● Use both organic and chemical fertilizers for the same crops	293	35.1
● Use only chemical fertilizers	15	1.8
● Use only organic fertilizers	233	27.9
Crops cultivated using only organic fertilizers		
● Chena cultivation	37	4.4
● Fruits	12	1.4
● Vegetables	364	43.6
● Paddy cultivation	203	24.3
● None	18	2.2
● Other cultivation	5	0.6
● Two types of crops cultivation	178	21.3
● More than two crops of cultivation	17	2.0
Land area cultivated using only organic fertilizers (in acres)		
● 5 or above	21	2.5

• 3 to 4	81	9.7
• 1 to 2	274	32.9
• Less than 1	452	54.2
• None	6	0.7
Duration of using organic fertilizers		
• Less than 1 year	663	79.5
• 1 to 2 years	124	14.9
• 3 to 4 years	30	3.6
• 5 or above years	17	2.0

Source: Field Data

4.2. Descriptive Analysis of Research Variables

4.2.1. Reliability of the Measures

To ensure the reliability of the measures, a reliability test (Alpha Value) was conducted. An alpha level of 0.7 or above is generally considered to be acceptable (Cronbach, 1951; Karunasena & Deng, 2012). A construct reliability between 0.6 and 0.7 is acceptable (Hair et al., 2006). All the reliability coefficient values of the variables are higher than 0.6 according to Table 2, ensuring the reliability of the measures.

4.2.2. Validity of the Measures

All the variables were selected based on strong literature to support the theoretical validity of the study; face validity of this project was enriched with well-grounded literature. Content validity was also ensured by including several dimensions of all the variables. A factor analysis was conducted to ensure the construct validity (convergent and discriminant). After the factor analysis, some of the items were removed which had lower factor loading. The final results of the factor analysis are shown in Table 02.

Table 02: Reliability Test and Factor Analysis

Variables	Average Variance Extracted Value (AVE)	Total Variance Explained Value (TVE)	Reliability (Cronbach's Alpha)
Government encouragement (GE) (12 items)	0.787193	85.416	0.948
Non-government encouragement (NGE) (12 items)	0.763458	87.890	0.968

Perceived health consciousness (PHC) (12 items)	0.722983	72.296	0.898
Perceived higher taste of the harvest (HT) (12 items)	0.8649	86.558	0.843
Economic benefits from the harvest (EB) (12 items)	0.744758	82.298	0.771
Self-satisfaction (12 items)	0.80554	80.594	0.911
Practicing sustainable agriculture (PSA) (12 items)	0.883103	88.297	0.967
As a solid waste management strategy (WM) (12 items)	0.675139	78.566	0.955
Dependent Variable Usage of organic fertilizer in agriculture (UOF) (12 items)		52.343	0.732

Source: Field Data

All factor loadings exceeded the minimum threshold of 0.50, indicating acceptable item reliability (Hair et al., 2016). AVE was computed as the average of the squared standardized factor loadings of the indicators associated with each latent construct.

The items of the nine variables had values of Average Variance Extracted (AVE) higher than 0.5 indicating acceptable convergent validity (Fornell & Larcker, 1981). Composite Reliability (CR) values exceeded 0.70, confirming satisfactory internal consistency reliability. As shown in Table 03, AVE is greater than 0.5 and Composite Reliability is higher than 0.6, which ensures the convergent validity of the variables.

Table 03: *Analysis of Convergent Validity*

	GE	NGE	PHC	HT	EB	SS	PSA	WMS
Average Variance Extracted (AVE)	0.787193	0.763458	0.722983	0.8649	0.744758	0.80554	0.883103	0.675139
Composite Reliability (CR)	0.977859	0.974769	0.928748	0.927556	0.944987	0.943082	0.974191	0.961387

Source: Field Data

GE= Government encouragement, NGE= Non-government encouragement, PHC= Perceived health consciousness, HT= Perceived higher taste of the harvest, EB=Economic benefit, SS= Self-satisfaction, PSA= Practicing sustainable agriculture, WMS= Waste management strategy

The Fornell-Larcker criterion is a decision rule based on a comparison between the squared construct correlations and the AVE (Fornell & Larcker, 1981). According to Table 04, all constructs (all the variables) AVE values in diagonal were greater than the Squired Multiple Correlation (SMC), with other constructs in off diagonal, which ensures that all constructs (variables) met the acceptable standard of Discriminant Validity (Fornell & Larcker, 1981; Hair et al. 2016). Therefore, the Discriminant Validity of the variables and the internal consistency of these measures are ensured.

Table 04: Comparison between AVE and Squared Multiple Correlation(SMC)

	GE	NGE	PHC	HT	EB	SS	PSA	WMS
GE	**0.787193****							
PHC	0.049729*	0.007921*	**0.722983****					
HT	0.004761*	0.004624*	0.120409*	**0.8649****				
EB	0.000169*	0.077284*	0.062001*	0.064009*	**0.744758****			
SS	0.046656*	0.000625*	0.054289*	0.099225*	0.009216*	**0.80554****		
PSA	0.086436*	0.005625*	0.018769*	0.026244*	0.014884*	0.121104*	**0.883103****	
WMS	0.033489*	0.001521*	0.075625*	0.081225*	0.1296*	0.0169*	0.002209*	**0.675139****

******Average Variance Extracted (AVE)
* Squared Multiple Correlation (SMC)

GE= Government encouragement, NGE= Non-government encouragement, PHC= Perceived health consciousness, HT= Perceived higher taste of the harvest, EB= Economic benefit, SS= Self-satisfaction, PSA= Practicing sustainable agriculture, WMS= Waste management strategy

The study conducted parametric tests for hypotheses testing and validating the model developed through the conceptual framework. Accordingly, the Pearson correlation coefficient, the multiple linear regression analysis was conducted to test the hypotheses and to identify the causal relationship between the independent and dependent variables.

4.2.3. Pearson Correlation Coefficient

Pearson's correlation coefficient test was conducted to examine the correlation among the variables. Correlation measures the strength of the relationship between two variables (Malhotra, 2011) as shown in Table 05. For the correlation analysis, all eight independent variables were considered with the dependent variable.

Table 05: Correlation

		Usage of Organic Fertilizer	Government encouragement	Nongovernment encouragement	Perceived Health Consciousness	Higher taste	Economic benefit	Self -satisfaction	Practicing sustainable agriculture	Waste management strategy
UOF	Pearson Correlation	1								
	Sig. (2-tailed)									
GE	Pearson Correlation	-.110**	1							
	Sig. (2-tailed)	.002								
NGE	Pearson Correlation	.000	.258**	1						
	Sig. (2-tailed)	**.989**	.000							
PHC	Pearson Correlation	.318**	-.223**	-.089*	1					
	Sig. (2-tailed)	.000	.000	.010						
HT	Pearson Correlation	.246**	-.069*	.068	.347**	1				
	Sig. (2-tailed)	.000	.048	.051	.000					
EB	Pearson Correlation	.361**	.013	.278**	.249**	.253**	1			
	Sig. (2-tailed)	.000	.702	.000	.000	.000				
SS	Pearson Correlation	.183**	.216**	.025	.233**	.315**	.096**	1		
	Sig. (2-tailed)	.000	.000	.473	.000	.000	.006			
PSA	Pearson Correlation	.141**	.294**	.075*	.137**	.162**	.122**	.348**	1	
	Sig. (2-tailed)	.000	.000	.031	.000	.000	.000	.000		
WMS	Pearson Correlation	.667**	-.183**	-.039	.275**	.285**	.360**	.130**	.047	1
	Sig. (2-tailed)	.000	.000	.262	.000	.000	.000	.000	.171	

Source: Field Data

r = Pearson correlation coefficient of the sample

sig. = significant value (p)

**Correlation is significant at the 0.01 level (2-tailed)

GE= Government encouragement, NGE= non-government encouragement, PHC= Perceived health consciousness, HT= Perceived higher taste of the harvest, EB= Economic benefit, SS= Self-satisfaction, PSA= Practicing sustainable agriculture, WMS= Waste management strategy, UOF=Usage of organic fertilizer

According to Table 03, there is no multicollinearity between the independent variables ($r<0.9$). All the independent variables except non-government encouragement ($p > 0.01$) have a linear relationship with the dependent variable of the usage of organic fertilizer variable (significant at the 0.01 level ($p < 0.01$)), which can be considered for regression analysis.

4.2.4. Multiple Linear Regression Analysis

Multiple regression analysis was conducted to examine the significant factors affecting the usage of organic fertilizer. As per the results from the correlation analysis, the independent variable "non-government encouragement" is not

significant and has no relation with the dependent variable; hence, it has been removed from further analysis.

Table 06: Regression Analysis

Model 1	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**	**Collinearity Statistics**	
	B	**Std. Error**	**Beta**			**Tolerance**	**VIF**
Regression					.000[b]		
(Constant)	-54.974	15.172		-3.623	.000		
GE	-.067	.140	-.014	-.479	.632	.779	1.284
PHC	2.590	.687	.108	3.770	.000	.760	1.317
HT	-.774	1.288	-.017	-.601	.548	.772	1.295
EB	1.578	.389	.112	4.061	.000	.817	1.225
SS	1.217	.645	.054	1.887	.059	.760	1.315
PSA	1.639	.624	.073	2.626	.009	.806	1.240
WMS	3.978	.190	.589	20.914	.000	.786	1.272
R	.697[a]						
R Square	.485						
Adjusted R Square	.481						
Durbin-Watson	1.734						

Source: Field Data

p* (sig) < 0.01 = Significant at the 0.01 level
sig. = significant value (p)

GE= Government encouragement, PHC= Perceived health consciousness, HT= Higher taste of the harvest, EB=Economic benefit, SS= Self-satisfaction, PSA= Practicing sustainable agriculture, WMS= Waste Management Strategy

Variance inflation factor (VIF) was used to detect the multi-collinearity in the model. According to Table 06, the VIF values of all the explanatory variables are less than 05, indicating that there is no severe multicollinearity. The VIF values less than five (05), imply no multi-collinearity within the data (Akinwande et al., 2015). Since the Durbin Watson statistics is in between 1.50-2.50, there is no auto-correlation presence (Durbin & Watson, 1951).

According to Table 06, waste management strategy, economic benefit, perceived health consciousness, practicing sustainable agriculture, self-satisfaction variables significantly influence the usage of organic fertilizer at a 0.05 level.

It could be concluded that 48.1% of variations in the usage of organic fertilizer can be explained by the independent variables; waste management strategy, economic

benefit, perceived health consciousness, practicing sustainable agriculture, self - satisfaction. Among them, waste management strategy seems to be the most significant factor affecting the usage of organic fertilizer in agriculture.

4.3. Discussion

The findings of the study were confirmed by several previous studies. The notion of organic fertilizer helping the prevention of diseases, it significantly affects its usage in agriculture (Smith & Paladino, 2010; Karki et al., 2011; Sapbamrer & Thammachai, 2021). Similarly, authors confirmed that higher nutrition significantly affects the usage of organic fertilizers in agriculture (Worthington, 2001; Magkos et al., 2003; Winter, 2006). Organic foods are considered healthier, safer, and better than conventional foods (Magnusson et al., 2001). Similarly, many authors revealed that the economic benefit significantly affects the usage of organic fertilizers in agriculture (Cukur & Isin, 2008; Ceylan et al., 2010; Mahdi et al., 2010; Wu et al., 2014; Quynh, 2018; Azam & Shaheen, 2019). Organic fertilizer usage is less costly and affordable to small and marginal farmers (Mahdi et al., 2010; Sri Lanka Export Development Board., 2015; Food and Agriculture Organization of the United Nations, 2015). Moreover, there are several authors revealed that self-satisfaction significantly influences the usage of organic fertilizers in agriculture (Rickson et al., 1999; Mzoughi, 2014; Bouttes et al., 2020). Practicing sustainable agriculture significantly affects the usage of organic fertilizer and it has been identified by several authors (Cukur et al., 2019; Sapbamrer & Thammachai, 2021). Similarly, health awareness and environmental awareness have affected the decision of farmers to switch to organic farming (Smith & Paladino, 2010; Karki et al., 2011; Azam & Shaheen, 2019; Sapbamrer & Thammachai, 2021). Personal and social norms influence the behavior of the farmers usasge of organic fertilizer in agriculture (Xie, 2021). Several researchers have identified organic agriculture is not just a resolution for more affluent countries but is useful even in poorer countries as it helps to attain sustainable development (Willer & Youssefi, 2007; Ahlem & Hammas, 2017). Several authors have identified that organic fertilizer as a waste management strategy which significantly contributes to its usage (Tandon, 1999 cited in Mahdi et al., 2010; Wu et al., 2014; Quynh, 2018).

The analysis of the study has identified several factors that do not significantly affect the usage of organic fertilizer. Accordingly, three factors; government encouragement, non-government encouragement and perceived higher taste of the harvest have been identified as insignificant by the quantitative analysis of the study.

5. Conclusion

This study identified the significant factors affecting the usage of organic fertilizers in Sri Lanka. Accordingly, the quantitative analysis which was conducted with a large sample (834 sample of general farmers) from the Anurdhapura District, identified that waste management strategy, economic benefits, perceived health consciousness, practicing sustainable agriculture, and self-satisfaction were statistically significant with the dependent variable usage of organic fertilizer. The study confirmed that 48.1% variation in the usage of organic fertilizer can be explained through the significant independent variables. Among those variables, waste management strategy is the highest significant variable with the dependent variable, which individually explains 44.5% of the dependent variable. Based on the findings, the study finally proposes policy measures to encourage the usage of organic fertilizer in agriculture. The findings of the study will help to improve the usage of organic fertilizer in agriculture to restore environmentally friendly farming in Sri Lanka.

5.1. Theoretical Implications

This study enhances theoretical understanding of the determinants of organic fertilizer usage by integrating the Theory of Planned Behavior and Ecological Modernization Theory

According to the Theory of Planned Behavior, the findings have confirmed that the behavior of farmers can be explained in terms of attitudes toward the behavior, subjective norms, and perceived behavior control. The variables, perceived health consciousness, economic benefits, and self-satisfaction represent the attitudes toward the behavior, as they reflect farmers' positive evaluation of using organic fertilizer. Waste management strategy, linked to perceived behavioral control, was the most significant determinant. It reflects farmers' ability, resources, and technical capacity to convert agricultural waste into organic fertilizer.

According to the Normative Behavior Theory, individuals' actions are guided by personal and social norms. In this context, farmers who are more aware of health and environmental benefits or who gain satisfaction from responsible practices are likely to follow internalized personal norms, while the broader community expectations shape social norms that encourage organic fertilizer usage. Therefore, in the future, it will be necessary to promote farmers' awareness on organic fertilizer usage and ascription of responsibility, to enhance farmers' personal norms, and to improve the level of farmers' social norms, in order to greatly promote farmers' engagement in organic fertilizer usage.

5.2. Practical Implications

The study provides the following policy implications to improve the usage of organic fertilizer in agriculture based in the Mihinthale Divisional Secretariat, Anuradhapura District in Sri Lanka.

- Encourage farmers to use organic fertilizers

Farmers should be made aware of the nutrient information consistent with organic harvest, and how those nutrients benefit their health to prevent diseases and improve the health of elderly people, and their children. That awareness could improve the farmers' perception of the usage of organic fertilizer to a satisfactory level.

- Assist and facilitate farmers to use organic fertilizers and increase economic benefits

Farmers should be made aware on how to improve their income by using organic fertilizer. Initially, they should be provided with good awareness about economic benefits of using organic fertilizer prepared by themselves, and also by selling the organic harvest at a good price (which has considerable demand). Furthermore, farmers could be given particular training about organic cultivation and how to make organic fertilizers at home. The government and other organizations could provide required equipment at a fair price or under a loan scheme for preparing organic fertilizer and cultivation. Further, they could assist farmers for finding markets and selling their harvest locally and internationally.

- Improve farmers' self-satisfaction

The government / non-government organizations can always motivate farmers to use organic fertilizer. They can always appreciate farmers' efforts in preparing and using organic fertilizer and engaging in organic cultivation which is difficult and time-consuming compared to non-organic cultivation. Especially, the farmers who are engaging in organic cultivation can be recognized and specialized among the other general farmers by giving some privilege to them in the village, which can easily improve their self-satisfaction. Through this the other farmers will also get encouraged to move into organic farming.

- Introduce organic fertilizer as a good solution to waste management

Using waste at home for preparing organic fertilizer is a good waste management strategy. Therefore, the government and other organizations can raise awareness in the farmers that the usage of organic fertilizer is a better solution for their accumulating waste at home and village. Also, the farmers can be provided with the required equipment (at a fair price or under a loan scheme), knowledge and training

on how to technically convert waste into fertilizer in a hygienic way. Through these programs, farmers can be taught what kind of waste should be used and how those wastes can be used to prepare fertilizer by using resource persons and workshops or training programs.

6. Limitations and Further Research

This study was conducted only for Mihinthale Divisional Secretariat in Sri Lanka using a cross-sectional design. Therefore, the findings of the study apply only to that divisional secretariat. The sample size of the study is 834 and if the sample size was larger, the findings will be more reliable.

Future research can be conducted based on the whole country with a larger sample. Another study can be conducted with qualitative data to explore for validating the research findings. Furthermore, a longitudinal research design can be employed to gain a clearer understanding of changes in organic fertilizer usage and its determinants over time.

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Factors Influencing Students' Choice of University: Evidence from a Selected Faculty of Management at a State University in Sri Lanka

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Abstract

Students are selected for state universities from the General Certificate of Examination (Advanced Level) in Sri Lanka based on a merit-based quota system that uses the Z-score obtained at the examination. University admission depends on the Z-score, students' order of preference, and district quotas. Despite the Z-score–based admission system, recent trends indicate a noticeable shift in students' preferences when selecting universities. However, there is a dearth of empirical evidence explaining the reasons behind this changing pattern within state universities in Sri Lanka. This study investigates the key factors influencing students' choice of a state university for higher education. Using quantitative research methods, the study selected a management faculty of a leading state university in Sri Lanka. A sample of 132 first-year undergraduates from the 2024/2025 batch was selected from a population of 1,320 students enrolled in the selected management faculty. Data were collected through an online survey using a structured questionnaire, and both descriptive and inferential statistics were used to analyze the data. The findings reveal that university reputation and facilities are the most crucial factors influencing students' university selection. The results are beneficial for students in making decisions regarding their higher education. The findings are also valuable for policymakers and university administrators in designing and planning higher education strategies. This study represents an initial attempt to explain why students' preferences are changing in the selection of state universities within the context of the free education system in Sri Lanka.

Keywords: Higher Education, Sri Lanka, State Universities, University Choice

1. Introduction

1.1. Background of Study and the Problem Identification

Higher education plays a pivotal role in shaping individuals' career paths, social mobility, and personal development. It not only improves employability but also

contributes to innovation, civic engagement, and national economic growth (Perna, 2006, as cited in UNESCO, 2023).

The Sri Lankan education structure consists of five stages: primary, junior secondary, senior secondary, collegiate, and higher education. Primary education spans five years, from Grade 1 to Grade 5. Junior secondary education covers Grades 6 to 9, while senior secondary education includes Grades 10 and 11, which prepare students for the General Certificate of Education (Ordinary Level) [G.C.E. (O/L)] examination. Students who wish to pursue higher education must pass the G.C.E. (O/L) to enter the collegiate level, where they study for two additional years (Grades 12 and 13) before sitting for the General Certificate of Education (Advanced Level) [G.C.E. (A/L)] examination. Based on their performance in this examination, students may then progress to higher education.

Higher education in state universities is free of charge and highly competitive in Sri Lanka. Admission to state universities is based on the Z-Score, a standardized score derived from students' results in the G.C.E. (A/L) examination. The Z-Score determines university entrance eligibility across districts (UGC, 2023), with priority given to top scorers from each district. Among the seventeen state universities in Sri Lanka students select specific universities due to numerous factors in addition to the Z-score criteria. Students can apply to their preferred university as per the instructions of the University Grant Commission.

This study examines the significant factors affecting students' choice of a university among undergraduates studying in the Faculty of Management at a selected state university. First-year undergraduates were selected because they are the most recent cohort to have completed the university selection process and therefore possess the most accurate and relevant insights into the factors influencing their decision-making. Although the Z-Score is the official basis for university admission, students also consider several other factors when expressing their university preferences, such as institutional reputation, facilities available at the institution, career prospects, influence from family and friends, and the communication efforts undertaken by universities (Emon et al., 2023; Agrey & Lampadan, 2014).

In the Sri Lankan state university system, eleven universities offer degree programmes in Management. Among them, the selected university, hereafter referred to as State University A, is reputed as a center of excellence in management education. In the past, students who obtained the highest marks at the G.C.E. (A/L) examination tended to apply to State University A. The degree programmes offered by the Faculty of Management of State University A are among the most reputed programmes recommended for students who have completed the G.C.E. Advanced

Level examination in the Commerce stream. Accordingly, over the years, State University A has consistently been ranked as a leading university in the field of Management studies in Sri Lanka. Therefore, a large number of students who completed the G.C.E. (A/L) examination in the Commerce stream have selected State University A as their first preference for higher education

Another state university, hereafter referred to as State University B, which is reputed as a higher education institution for engineering, has established a Faculty of Management in 2017 for students who have excelled in the Commerce stream of the Advanced Level examination.

In 2023 and 2024, students who received the highest marks at the G.C.E. (A/L) examination selected this management faculty as their first preference, rather than the faculty that had usually received this preference, as shown in Table 01.

The following statistics indicate the percentage of students selecting State University A, State University B, and other state universities. Accordingly, out of the top 400 ranked students in the G.C.E. (A/L) examination, 55 students selected State University B (Dean of the Faculty of Management Studies and Commerce (FMSC), State University A, 2024).

Table 01: Distribution of the Top Four Hundred Ranked Students to Universities

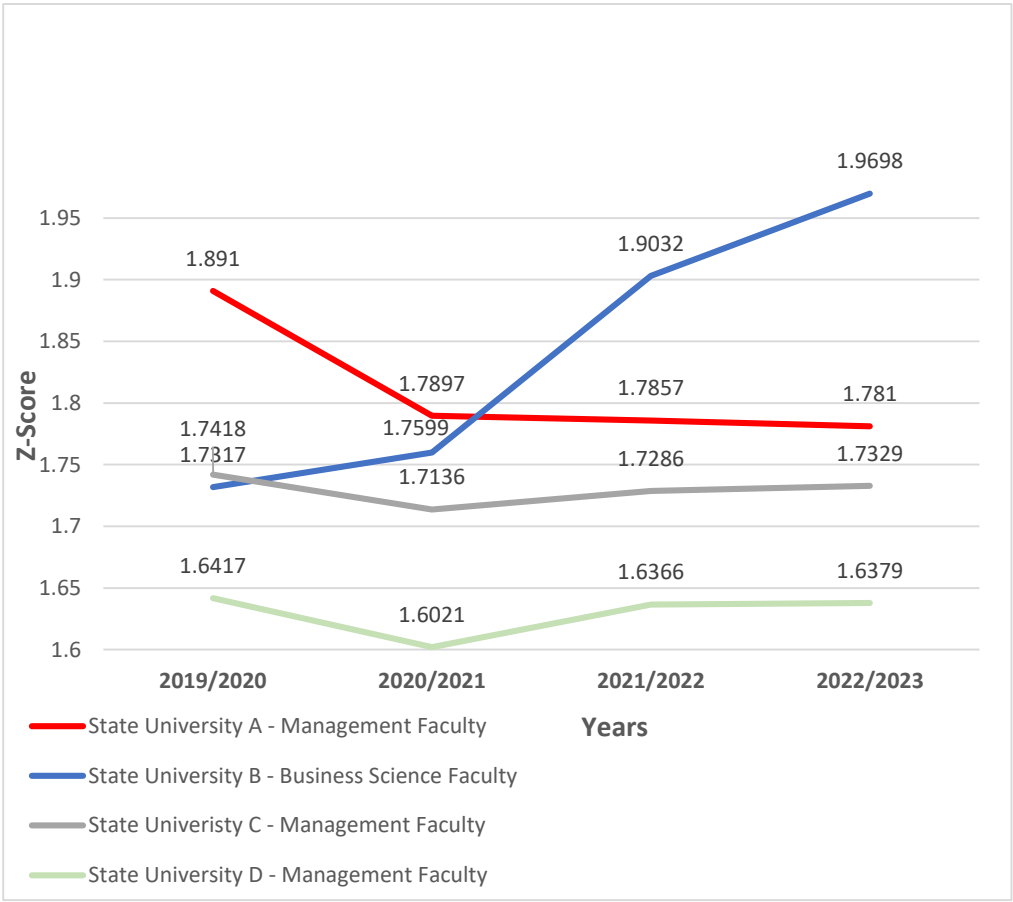
Top-ranked students from the GCE Advanced Level Examination	**Selected State University (A)**	**State University (B)**	**Other Universities**
1-100	70	22	8
101-200	85	08	7
201-300	79	14	7
301-400	80	11	9
Total	**314**	**55**	**31**

Source: Dean of FMSC, State University A (2024)

Further, according to the statistics of the University Grants Commission (UGC), the Z-score required for admission to State University A has decreased, while the Z-score required for the Business Science degree at State University B has increased considerably. According to *University Admissions – Academic Year 2022/2023* (2023), the minimum Z-score required for the Management degree at State University A was 1.7810, while the minimum Z-score for the Business Science degree at State University B was 1.9698 in the 2022/2023 academic year. In comparison, during the 2019/2020 academic year, the minimum Z-score for State University A was 1.8391,

whereas it was 1.7317 for State University B. For comparison purposes, the Z-scores of State University C and State University D are also presented in Figure 01.

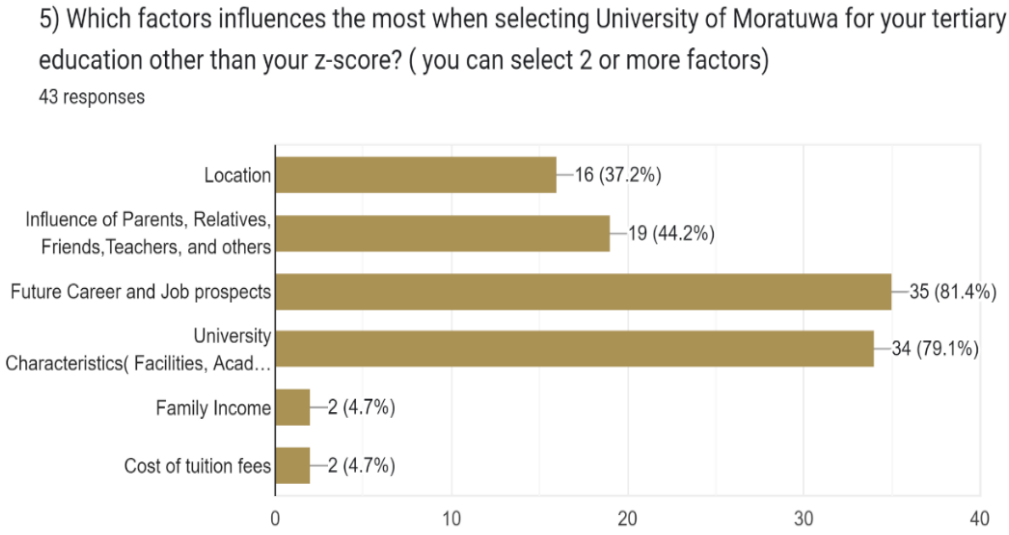
Figure 01: Z-score distribution in State University A, State University B, State University C, and State University D



Source: University Admission - Academic Year 2022/2023

Further, a pilot study was conducted on 28 February 2024 using an online questionnaire to identify factors beyond the Z-score that influenced students' selection of State University B. The pilot study involved forty-three first-year undergraduates from the Faculty of Business at State University B. The results indicated that the two reputed universities considered by the respondents were State University A and State University B. Out of the forty-three participants, thirty-eight identified State University B as their first choice, while five selected State University A

Figure 02: Most Influential Factors Affecting Selection of State University B
Source: Preliminary Investigation (28/02/2024)



The results further indicated that, apart from the Z-score, the most influential factors affecting the choice of State University B were future career and job prospects, university reputation, facilities, influence of others, and location. Family income and tuition-related costs were found to be less significant. Overall, future career and job prospects emerged as the greatest influencing factor in the preliminary investigation. Figure 2 illustrates this information.

Due to the lack of research on students' choices for higher education, specifically regarding state universities and management faculties, this study will examine the key factors influencing students' decisions in selecting a state university for higher education in Sri Lanka.

1.2. Research Questions

1. What are the key factors influencing students' choice of a management faculty for higher education?
2. Which factors have the greatest influence on students' choice of university for higher education in Sri Lanka?

1.3. Significance of the Study

The novelty of this study lies in identifying the determinants that influence university choice within the context of free education. This study contributes to the higher education literature in Sri Lanka by integrating socio-psychological and institutional perspectives, as prior empirical research in this area has been limited. The findings will be useful to educational policymakers, students and parents, teachers, and career advisors in making informed decisions. University administrators can also use the findings to improve facilities and optimize resource allocation. At the policy level, the study supports education policymakers in developing strategies that better address students' needs and enhance both access to and the quality of higher education.

2. Literature Review

2.1. Higher Education

Higher education, also known as tertiary education, refers to the level of education that comes after secondary (high school) education and usually consists of colleges, universities, and technical institution (UNESCO, 2023). Higher education refers to education at a college or university where subjects are studied in great detail and at an advanced level (Cambridge Dictionary).

2.2. State Universities in Sri Lanka

State universities are higher education institutions established, funded, and primarily governed by the Government of Sri Lanka to provide public access to tertiary education. They are formally defined by the Universities Act No. 16 of 1978, which outlines their nature and governs them under specified academic responsibilities. The University Grants Commission (UGC) oversees these institutions, allocating resources and ensuring quality across universities. State universities, as public institutions, play a central role in developing the country's human capital through undergraduate and postgraduate education, research, and contributions to social and economic development.

2.3. Theories Related to Student University Choice

There are several theories explaining the choice of state universities, including Chapman's theory of student college choice and the combined model theory by Hossler et al.

2.3.1. Chapman's Theory of Student College Choice

Chapman's (1981) model of student college choice provides a systematic account of how students make decisions regarding university selection. The model classifies the volitional constructs influencing university choice into two groups: student characteristics, which include socio-economic status, high school performance,

ability, and educational aspirations; and external influences, which are further divided into three categories: (a) the influence of key individuals (family, friends, teachers), (b) the static characteristics of a university (e.g., reputation, location, course offerings), and (c) the communication efforts made by the university. Research by Alston et al. (2019) and Clayton (2013) has examined university selection decisions using this framework with different student groups. Since these researchers have applied this theory in their studies, Chapman's model serves as a fundamental framework for this study.

2.3.2. Theory of Combined Model by Hossler et al. (1989)

Hossler and colleagues' econometric-sociological model explains students' higher education choices by integrating economic expectations, personal aspirations, and sociocultural influences, such as parental guidance and peer pressure. This model is particularly useful for the present study because it supports the inclusion of variables such as career prospects, university reputation, facilities, and social influence. It will guide the conceptual framework and help interpret how both individual and social factors shape students' selection of universities. The model provides a holistic understanding of decision-making by capturing both economic and social dimensions.

2.4. Empirical Research

Several factors identified by previous scholars in this regard are discussed in the following sections.

2.4.1. University Reputation

University reputation and institutional image have consistently emerged as among the most influential determinants of students' university choice in both international higher education and developing-country contexts. Institutional reputation serves as a signal of academic quality, credibility, and future returns, influencing students' perceptions of a university's prestige, value, and graduate employability (Spence, 1973). Universities with strong reputations for academic quality, qualified academic staff, and positive public perception tend to attract more applicants and rank higher on students' lists of preferred institutions (Chapman, 1981). Moreover, a university's reputation affects students' expectations regarding the recognition of their degrees in the labor market. In competitive higher education systems, reputation remains a critical non-academic factor considered by prospective students when choosing where to study (Veloutsou et al., 2004; Weerasinghe & Fernando, 2017; Wijesinghe et al., 2023).

2.4.2. University Facilities

Modern lecture theatres, library and laboratory facilities, technological infrastructure, and sports and recreational amenities are important considerations for students, as they enhance both the quality of education and overall student life. A safe and conducive learning environment, supported by adequate technology, improves the student experience and facilitates effective teacher–student interaction by enabling efficient teaching and learning processes (Temple et al., 2014). Research further indicates that students associate the quality of infrastructure with both academic and personal development. It has been identified as a significant factor influencing university choice, particularly within public university systems (Agrey & Lampadan, 2014; Ming, 2010; Weerasinghe & Dedunu, 2017).

2.4.3. Future Career and Job Prospects

Future career prospects rank highly in students' decision-making processes, with many preferring universities that enhance graduate employability through strong industry connections, internship opportunities, and career guidance services. Universities are often favored based on employment-related outcomes, reflecting the importance of their ability to support graduates' career development (Wilkins & Huisman, 2015). Institutions with higher graduate employability rates and stronger links to the labor market tend to receive more positive evaluations from prospective students (Emon et al., 2023; Sarkodie et al., 2020).

2.4.4. Influence of Others

Parents, friends, teachers, or other career influences, have a contributing but rather inconsistent part in the process of higher educational choice (Hossler et al., 1989). Unofficial communication, or 'word-of-mouth,' is involved in the formation of an individual's perception regarding quality, life, and educational credibility associated with a chosen institution (Hemsley-Brown & Oplatka, 2006). Though these other influences are less likely to finally influence decision-making, they tend to support, undermine, or suggest alternatives to some choices through guidance, endorsement, or experiential knowledge (Shanka, & Taylor, 2005; Kim & Gasman, 2011; Rowan-Kenyon et al., 2008).

2.4.5. College Efforts to Communicate with Students

Institutional communication and marketing activities impact the image of universities as presented to prospective students. Communications through Open Days, institutional websites, leaflets, and social networks are key in informing potential students about the offerings of the institution (Ivy, 2008). Communication is useful in projecting an institution's visibility and shaping students' first impressions in an institution. However, its significance is generally less pronounced compared to other

core characteristics such as institutional reputation, infrastructure, and job placement. Marketing is more successful if it strengthens an existing positive image of an institution rather than being the deciding factor itself (Pampaloni, 2010; Hoyt & Brown, 2003; Sidin et al., 2003).

2.4.6. Cost

Tuition, availability of scholarships, and affordability constitute key factors when selecting a university across all education systems, although their interrelationship varies notably in those systems that do not fully subsidize tertiary education. However, even in systems with partial or full public funding, indirect costs and financial support mechanisms may still affect students' decisions (Perna, 2006). Empirical studies indicate that affordability and access to financial aid contribute to students' ability to pursue higher education, although their relative importance may be lower in countries with free public university systems (Ming, 2010; Emon et al., 2023). Cost is not related to this study in the context of, the free educational system.

Overall, empirical literature indicates that the choices available to students in higher education are influenced by a range of factors, including reputation and facilities, career opportunities, economic considerations, social influences, and communication (Emon et al., 2023). While international literature highlights reputation, employment prospects, and infrastructure as key determinants, studies in the Sri Lankan context also emphasize student satisfaction and the quality of academic staff (Weerasinghe & Fernando, 2018). Although the primary criterion for university admission in Sri Lanka is the Z- Score system, the literature suggests that non-academic factors also play a significant role in shaping student preferences. However, there is a lack of empirical research examining the relative impact of these factors within management faculties of state universities operating under a free education system.

3. Methodology

3.1. Conceptual Framework

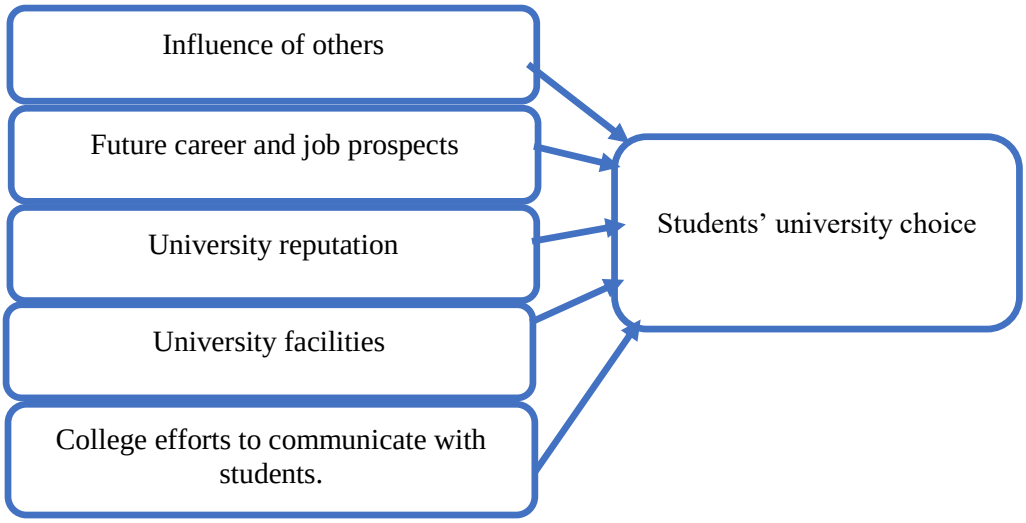
The theoretical framework for this study is developed based on the combined model proposed by Hossler et al. (1989) and Chapman's (1981) model of student college choice, along with empirical research on university choice. It also draws on additional sources such as Hossler and Gallagher (1987), Joseph and Joseph (2000), Harvey et al. (1992), Veloutsou et al. (2004), Aydin (2015), and Le et al. (2022).

In this study, university reputation, facilities, influence of others, future career and job prospects, and communication efforts are treated as independent variables, while university choice is considered the dependent variable. All variables were operationalized using validated indicators adapted from previous literature and

measured using a seven-point Likert scale to capture respondents' levels of agreement.

Thus, the factors included in the framework are theoretically substantiated and appropriate for quantitative analysis.

Figure 03: Conceptual Framework



3.2. Hypotheses Development

H1: The influence of others has a significant positive impact on students' university choice.

H2: Future career and job prospects have a significant positive impact on students' university choice.

H3: University reputation has a significant positive impact on students' university choice.

H4: University facilities have a significant positive impact on students' university choice.

H5: College communication efforts have a significant positive impact on students' university choice.

3.3. Research Approach

This study adopts a deductive approach using quantitative research methods. The target population consisted of 1,320 first-year undergraduates (2024/25 batch) from the Faculty of Management at the selected State University A, which is the top-ranked university in the field of management. A simple random sampling technique was used to select 10% of the population (132 students). First-year undergraduates were chosen because they are the most recent cohort to have made university choice decisions.

Data were collected using an online questionnaire distributed via Google Forms (Google, n.d.), employing a seven-point Likert scale. In addition, SPSS version 22 was used for statistical analysis. Descriptive statistics, correlation analysis, and regression models were applied to assess the relationships among variables and their significance in influencing university choice.

4. Analysis and Discussion

4.1. Demographic Analysis

The research sample for this study consists of a diverse and representative cross-section of first-year undergraduates at the selected State University A. The sample includes 132 students. Efforts were made to ensure that responses were collected without bias related to gender, race, income, or educational background. To achieve balanced representation, a random sampling method was employed.

Most of the first-year undergraduates who sat for the G.C.E. (A/L) examination in the Commerce stream are female students who chose to enroll in a state university. Out of the 132 students, 127 selected State University A, while the remaining students chose other universities. There are no missing values in this study.

4.2 Descriptive Statistics of the Research Variables

The descriptive statistics indicate that student university choice, university facilities, future career and job prospects, and university reputation all have mean values close to six, suggesting that respondents generally agreed with the statements related to these variables. In contrast, the influence of others and college efforts to communicate with students have mean values closer to five, indicating a moderately positive level of agreement. Overall, the results show stronger agreement for factors related to institutional quality and career prospects compared to social influence and communication efforts.

Table 02: Descriptive Statistics

	Student University Choice	University Facilities	Influence of Others	Future Career and Job Prospects	University Reputation	College Efforts to Communicate with Students
Mean	6.28	5.88	4.77	5.87	6.34	5.29
Median	6.88	6.0	5.0	6.0	7.0	5.0
Std. Deviation	1.06	.97	1.13	1.02	.94	.98

Source: Survey Data

Note: 7-point Likert scale fixed at 'strongly disagree' (1) and 'strongly agree' (7) has been used

According to Table 02, the variable *Influence of Others* has the highest standard deviation (1.13), indicating that it shows greater variability from the mean compared to the other variables. In contrast, *University Reputation* has the lowest standard deviation (0.94), suggesting that responses for this variable are comparatively less variable.

4.3 Reliability Analysis

For the reliability analysis, Cronbach's Alpha was used in this study to examine the internal consistency and reliability of the summed-up scales.

Table 03: ***Cronbach's Alpha – Reliability Tests***

Variable	Cronbach's Alpha	Number of Items
Student University Choice	.912	4
University facilities	.827	4
Influence of others	.791	6
University reputation	.907	4
College efforts to communicate with students.	.731	5
Future career and job prospects	.940	5

Source: Survey Data

Student university choice, which is the dependent variable, has a Cronbach's alpha value of 0.912. According to George and Mallery (2003), this indicates excellent internal consistency for that scale. Each of the independent variables has a

Cronbach's alpha value of 0.7, demonstrating acceptable internal consistency. Therefore, all scales used in this study exceeded the 0.7 threshold, and no items were eliminated.

4.4. Validity

In this study, content validity was established through a thorough review of existing literature. The measurement items were developed based on multiple dimensions identified in prior studies. A seven-point Likert scale was used as the survey instrument to capture a full range of responses. Face validity was ensured by developing the items for each variable based on well-established studies, including Joseph and Joseph (2000), who identified key determinants of student choice in higher education, and Le et al. (2022), who provided updated empirical measures relevant to the study context. Additionally, the questionnaire was reviewed by a diverse group of potential respondents to ensure that the items were clear, relevant, and appropriate.

To ensure the adequacy of the sample for the constructs and the suitability of the data for factor analysis, the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test were employed. A KMO value above 0.50 is considered the minimum for conducting factor analysis, while values above 0.70 are regarded as good, and values above 0.80 indicate very good sampling adequacy (Hair et al., 2019). Bartlett's test, on the other hand, assesses whether the correlation matrix significantly differs from an identity matrix (Bartlett, 1954). A result is considered significant when $p < 0.05$, indicating that the variables are sufficiently correlated to justify factor analysis. In this study, the KMO values for all variables exceeded the recommended threshold of 0.50, demonstrating adequate sampling adequacy for each construct. Furthermore, Bartlett's test was highly significant for all variables ($p < 0.001$), confirming the presence of significant intercorrelations among them. These validity assessments strengthen confidence in the reliability and interpretability of the research results.

4.5 Correlation Analysis

The correlation analysis was conducted to examine the relationship between each independent variable and students' university choice. This relationship is easily identifiable as it is represented by the symbol r and typically expressed as a unitless value ranging between -1 and +1.

Table 04 presents the correlation between students' university choice and the variables that influence undergraduates' decisions. The independent variables of university reputation and university facilities exhibit a significant moderate positive relationship, whereas influence of others, future career and job prospects, and college efforts to communicate with students show a low positive correlation.

Table 04: Correlation Analysis

		1	2	3	4	5	6
Student_University_ Choice (1)	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	132					
University Facilities (2)	Pearson Correlation	.531**	1				
	Sig. (2-tailed)	.000					
	N	132	132				
Influence_of_Others (3)	Pearson Correlation	.254**	.369**	1			
	Sig. (2-tailed)	.003	.000				
	N	132	132	132			
Future_Career_and_ Job_Prospects (4)	Pearson Correlation	.493**	.491**	.338**	1		
	Sig. (2-tailed)	.000	.000	.000			
	N	132	132	132	132		
University_Reputation(5)	Pearson Correlation	.579**	.532**	.253**	.683**	1	
	Sig. (2-tailed)	.000	.000	.003	.000		
	N	132	132	132	132	132	
College_efforts_to_ communicate_with_ students(6)	Pearson Correlation	.378**	.456**	.470**	.370**	.399**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	132	132	132	132	132	132

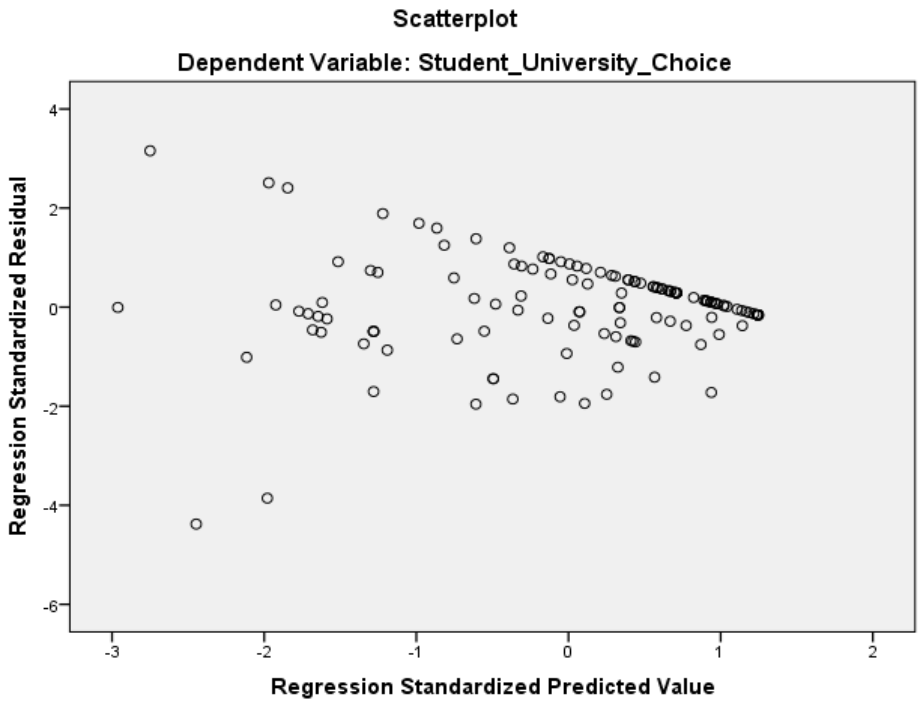
Source: Survey Data

**. Correlation is significant at the 0.05 level (2-tailed)

Table 04 above shows that the factors were determined to be significant in relation to first-year undergraduates' university choice at a 95% confidence level. Since the significance values of the above-mentioned parameters are less than 0.05, the correlations are considered statistically significant.

All positive correlation coefficients of the significant variables indicate a positive and meaningful relationship between each variable and students' university choice. University reputation and university facilities exhibit the highest moderate positive significant relationships with students' university choice, while the other variables also show positive significant relationships.

Figure 04: Residuals' Behavior



Source: Survey Data

According to the scatterplot diagram, standardized residuals are plotted against standardized predicted values. The residuals are randomly distributed without any systematic pattern, and there is no funnel shape present. Therefore, the variance of the residuals is constant, indicating an equal spread of residuals and homoscedasticity (Field, 2018).

Table 05: Collinearity Statistics

	Collinearity Statistics	
	Tolerance	**VIF**
University facilities	.613	1.632
Influence of others	.728	1.374
Future career and job prospects	.493	2.028
University reputation	.471	2.123
College efforts to communicate with students	.660	1.515

Source: Survey Data

Since all of the VIFs (Variance Inflation Factors) are less than 10, the collinearity statistics show that there is no multicollinearity issue and that the independent

variables are not perfectly or highly correlated (Hair et al., 2019). Moreover, tolerance values add up to at least 0.1, confirming once more that there is no multicollinearity issue (Hair et al., 2019).

4.6 Regression Analysis

The Multiple Linear Regression model was used to examine the impact of individual factors on students' university choice.

Table 06: Individual Effects

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
University facilities	.288	.095	.263	3.032	.003
Influence of others	-.004	.074	-.005	-.058	.954
Future career and job prospects	.108	.100	.104	1.077	.284
University reputation	.376	.112	.334	3.367	.001
College efforts to communicate with students	.094	.089	.089	1.060	.291

Source: Survey Data

According to Table 06, university reputation ($\beta = 0.334$, $p = .001$) and university facilities ($\beta = 0.263$, $p = .003$) made significant positive contributions. Based on the standardized coefficients (beta values), the other factors; namely, influence of others, future career prospects, and college communication efforts, were not significant. University reputation is the most influential factor, as it has the highest absolute beta value.

Table 07: ***Model Summaries***

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.646[a]	.417	.394	.82358	1.803

Source: Survey Data

This shows an adjusted R^2 value of 0.394, indicating that 39.4% of the variance in student university choice is explained by the independent variables. The Durbin–Watson statistic of 1.803 confirms that the residuals are independent, and the ANOVA significance level ($p = 0.000$) indicates that the overall regression model is

statistically significant. Thus, the model is robust and explains a meaningful portion of students' university choice.

4.7 Discussion

The research found that university reputation and infrastructure/facilities are the two most influential drivers. These findings are supported by previous studies (Veloutsou et al., 2004; Ming, 2010). Specifically, these drivers align with the emphasis placed by Soutar and Turner (2002) on reputation as a critical determinant. Overall, the findings support several existing frameworks, such as Hossler et al.'s model, while also providing region-specific evidence. This alignment with earlier literature underscores the relevance of the study for policy formulation and for institutional strategy development. The lack of significance for other variables, according to the existing literature, may be due to the method of admitting students based on Z-Scores. However, future research with a larger sample is needed to confirm this phenomenon.

5. Conclusion and Recommendations

5.1. Conclusion

The study examined the most significant factors affecting students' decisions when selecting a university. The findings revealed that students tend to be influenced by a university's reputation, preferring institutions with strong academic standards, renowned faculty, and widespread recognition of their brand. Another critical factor shaping students' university choices is the quality and availability of facilities. Modern infrastructure, well-equipped libraries, and recreational amenities are among the aspects that students consider important for enhancing their academic experience.

5.2. Theoretical Implications

The study extends Chapman's Theory of Student College Choice (1981), which posits that both student characteristics and external influences impact college decisions. In the Sri Lankan context, the findings emphasize the central role of institutional reputation and facilities in the decision-making process. This suggests that university culture and context may be more influential than individual or social factors in determining student choice.

Additionally, the study partially confirms the combined model proposed by Hossler et al. (1989), which integrates economic and sociological perspectives to explain university choice. Among the economic factors, only university reputation aligns with the outcome-based decision-making emphasized in the economic model, while other significant influences, such as social factors and communication sources, reflect the sociological dimension of the framework. This indicates that the model is applicable in this context in a limited and selective manner rather than in its entirety.

Furthermore, the study contributes significantly to the literature on higher education in developing countries. Unlike most research on university choice, which has been conducted in developed countries with distinct educational infrastructures and decision-making processes, this study provides critical insights into how students in Sri Lanka make university decisions. It offers a valuable basis for comparison with future studies in similar developing nations.

5.3. Practical Implications

Based on the identified factors, university management should prioritize strategic reputation management as a core institutional function. Universities should actively invest in strengthening and maintaining their public image by systematically highlighting academic achievements, research outputs, accreditations, and national or international rankings through structured communication strategies.

A strong academic reputation is generally directly related to the quality of programs offered by an institution. Therefore, top management should continuously improve programs that are in high demand, aligning them with industry needs and anticipating market dynamics. This process enhances institutional reputation and effectively attracts students at a lower cost than other recruitment methods. Moreover, during recruitment efforts, a strong academic reputation provides a competitive advantage, as many students are drawn primarily by academic credentials, thereby improving the institution's perception within its immediate environment and beyond.

Investment in university facilities and infrastructure is also essential. Modern classrooms, well-equipped libraries, state-of-the-art laboratories, and attractive leisure spaces are important factors in student selection. Management should ensure these amenities are up to date and provide a rich and supportive academic environment. Upgrading technological resources is equally critical. Advanced IT infrastructure and modern learning management systems can significantly enhance the attractiveness of programs that rely on specialized equipment.

Beyond academic facilities, universities must address students' holistic needs. High-quality hostels, health centers, and recreational areas enhance the overall student experience, making the institution more appealing. Integrating sustainability and innovation into university administration, particularly in the management of facilities, can further increase appeal, especially among environmentally conscious students. Green initiatives and sustainable practices demonstrate the university's commitment to responsible management and forward-looking strategies.

By addressing these factors and effectively communicating the status and quality of amenities, university management can positively influence students' decisions and maintain a competitive position in the evolving higher education sector.

6. Limitations and Further Research

6.1. Limitations of the Study

Although this study provides valuable insights into the factors influencing students' choice of public universities in Sri Lanka, there are some limitations that affect the generalizability of its findings. The sample consisted of first-year management students from a single state university, excluding representation from other faculties and institutions. Another limitation is that the data were collected at a single point in time, whereas students' perceptions of reputation or career prospects may change during their studies; therefore, longitudinal studies would provide deeper insights. Additionally, factors such as government policies, economic conditions, and societal changes were not incorporated into this study, although they may significantly impact university choice.

6.2. Avenues for Future Research

Considering the findings and limitations of the current study, several directions for future research are recommended to gain further insight into the factors affecting students' university choice in Sri Lanka and beyond. Expanding the study to include students from all academic streams and multiple public universities would provide a larger, more representative dataset, thereby enabling the generalization of findings across different contexts.

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Artificial Intelligence policy: For this research, ChatGPT developed by OpenAI. (2025) was used for language enhancement.

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An Analysis of Family Influences on School Dropouts in Welimada Division, Sri Lanka: Evidence from Teachers' Perspectives

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Abstract

The issue of school dropout rates remains a significant concern in education systems worldwide, posing challenges to academic achievement and societal progress. This is particularly a challenge in rural area in Sri Lankan environment where economic poverty and family instability are still forcing students out of the formal education system. This study aimed to identify the family-related factors affecting dropouts in school education with perspectives from teachers in the Welimada division in Sri Lanka. Based on the qualitative research method, in-depth interviews were conducted with 30 teachers within the Welimada division based on the purposive sampling method and thematic analysis was used to interpret the findings. The key findings reveal that low family income, and unstable family structure significantly contribute to the school dropout rates as financial hardships, lack of stability and minimal parental involvement affect students' ability to sustain regular attendance. Moreover, since the family represents the closest and most effectible connection to the students, its overall environment exerts a profound impact on their education continuity. To reduce the school dropouts, the study proposes policy measures such as strengthening parental active involvement, promoting lifelong learning and increasing the awareness of the importance of formal education. These measures collectively strengthen the support system around students, motivate continuous attendance and foster positive attitude toward the long-term value of education.

Keywords: School Dropouts, Education, Policy Options, Welimada, Sri Lanka

1. Introduction

1.1. Background of Study

Education is a lifelong process that begins in early childhood and lasts throughout an individual's life. Formal, informal, and non-formal learning experiences occur in a variety of settings, including schools, universities, society, families, and businesses. School education plays a significant role in creating fundamental social assets such as how to read, write, and communicate as well as in preparing them to fit into society through improving the attributes along with intelligence and ability of the students (Silva & Rathnayake, 2024). Free education policy has been in practice in Sri Lanka from October 1945 with the ultimate objective of providing educational facilities to all the children of this country from the primary to the university level (Ministry of Foreign Affairs, Foreign Employment & Tourism Sri Lanka, 2022). Consequently, school can be presented as the paramount social necessity in the lives of people (Silva & Rathnayake, 2024). Although there is free access to education, persistent challenges, such as the issue of school dropouts, still hinder its full potential. The World Bank (2022) reports that a considerable number of children and youth are out of school across the globe, proving that school dropouts are current burning issues still discussed on global agenda. Dropping out of school education means leaving school before completing the relevant stage of education, resulting in no certification (Naich et al., 2023). There is a great need for research to explore the factors affecting dropouts in school education. Among these factors such as student, family, school and society related, family-related factors play a significant role since family is the primary support system of students' development and opportunities. In addition, while other factors have been more extensively studied, Dayasiri et al. (2024), Mayadunne and Kariyasekara (2021) and Vithanage (2022) research focusing on family-related factors remains comparatively limited. Therefore, identifying the family-related factors is crucial as the research findings help to reduce school dropouts. Hence, the main objective of this study is to investigate the factors affecting school dropouts in rural divisions in the Uva province in Sri Lanka.

The factors affecting dropping out of schooling, unless understood and addressed, will result in substantial costs to society (Perera, 2012) and considering the Uva Province's lower academic performance compared to other provinces, the Badulla district reflects more educational challenges than other districts. Badulla comprises of fourteen education divisions, totaling 601 government schools, including twenty-seven national schools. Badulla has mixed dropout rates among grade levels with current school census 2022/2023 demonstrating that some grades especially Grade 9 and 10 recorded higher student dropout rates of more than 2% which indicates that there is still a challenge in retaining students in schools (Student Census report, 2023).

The Welimada education division has 110 government schools providing education from primary level to advanced level (Statistics branch of Ministry of Education, 2025). This division may be known for a higher tendency of dropouts in the Badulla district (Student Census Report, 2024). In all government schools within the Welimada division, the number of Grade 9 students in 2023 was 2747, while in 2024 the number of Grade 10 students was 2668 (Student Census Report, 2024). According to the latest statistics above, within a short period of one year, the number of students who came from Grade 9 to Grade 10 has decreased by 79, which means they have dropped out of their school education (Student Census Report, 2024). Despite the critical nature of this dropout phenomena, there is limited research addressing how family-related factors affect school dropouts. Although several studies by Dayasiri et al. (2024), Mayadunne and Kariyasekara (2021) and Vithanage (2022) identified the economic, student related, school related, social and psychological factors influencing school dropouts, there is a lack of focus on family-related factors, particularly in the Sri Lankan context. Tsolou and Babalis (2020) and Mishara (2014) have identified family-related factors as strong predictors of dropout. Prior research has focused on estate and urban areas of Sri Lanka (Solangaarachchi, 2021; Vithanage, 2022).

Although school dropouts have been studied in other regions of Sri Lanka, there is still a lack of research on this issue, particularly in the Welimada Division, a semi-rural area. Therefore, this study aims to fill this gap by exploring the perspectives of teachers, thereby contributing to a better understanding of the family-related factors affecting school dropouts in a semi-rural context.

The increase in school dropouts weakens the country's total education level and undermines its development. When the number of students who complete school education decreases, it has a long-term impact on human capital, productivity, and national growth (World Bank, 2022).

Dropping out also reduces students' future work opportunities, limits their income capacity, and lowers their living standards, increasing their risk of poverty. Since the family is students' closest and most influential environment, it is critical to identify the factors related to family to prevent school dropouts.

The research objectives of the study are given below;

- To identify family-related factors affecting school dropouts in the Welimada Division, Uva Province, Sri Lanka.
- To provide policy measures to reduce the school dropouts.

2. Literature Review

2.1. Education

Education is the most effective way of achieving knowledge, skills and attitudes. It is a critical factor vital to the development of any nation and plays an incremental role in the estimation of a country's productivity (Fernando, 2017). Further, education is the field that refers to learning processes that took place in school or institutions and is distinguished from many non-formal and informal modes of acquiring socialization (Perera, 2012). The school provides students with their initial formal education. The success of the school system depends on various contexts. Regarding the context of teachers, the quality of the knowledge delivery depends on teacher-student relationship, occupational stress and progressive mindset combined with their mental and physical health status (Jennifer & Jayasinghe, 2025). Therefore, education does not involve a single path but multiple paths including school, students, family and teachers etc.

2.2. School Dropouts

School dropout can be defined as an individual who does not attend school and does not move forward from one level to another. This decision to pull out of school can be made at any level of schooling based on the education system adopted in that given country whether it is primary, secondary or tertiary level (Mahrool, 2020). Primary education is an important building block not just for students' development but for society (Jennifer & Jayasinghe, 2025). In the same manner secondary and tertiary education play equally vital roles. Dropouts commonly stop going to school and often do not complete school education. Hence, they could fail in trials to gain knowledge, skills, and certifications they require for their further academic and career endeavors (Hermogenes et al., 2014).

2.3. Related Theories

Bronfenbrenner's Ecological Systems Theory explains how children's development is shaped by multiple environmental systems, with the family-related factors forming the core microsystem. It emphasizes that interactions within the family such as parenting style, emotional support, and family relationships play a central role in shaping a child's social, emotional and cognitive development (Guy-Evans, 2024).

Bronfenbrenner's Ecological Systems Theory clearly explains how family-related factors, like family income, family structure and parental participation all have direct impact on students and their learning environment (Guy-Evans, 2024).

As per, Social Capital Theory social relations and resources help student education continuity in the way of relationships, norms and interactions that further assist by

providing emotional support, guidance, information and access to resources with persistence and goal attainments, especially the socioeconomic status (Plagens, 2011). Based on this theory one tends to believe that social relations affect students and school performance, underlining the function of social relationships in education.

Socioeconomic status of the family is primarily related to Social Capital Theory, which identifies the quality of relationship between family members, the well-established socioeconomic status of the family supports student's education continuity (Plagens, 2011). Collectively these theories explain how the family income, socioeconomic status, parental participation and family structure contribute to school continuity or dropout.

Thus, socioeconomic status of the family including family income, parental involvement and family structures are mainly identified as the family-related factors affecting the dropouts in school education under the theoretical framework of the present study (Das & Mane, 2017).

Family income is one of the main factors related to students' school education. When parents earn a very low income, they do not encourage schooling because they cannot provide for their children's needs; cannot spend time helping them with their studies or with other chores, as they must work for the family's survival. On the other hand, their children have to work to support their family (Das & Mane, 2017). Poor families have to find tuition fees, uniforms, books, transport fees and other necessities for their children. This creates financial stress that can be associated with anxiety and depression for their families and thus students leaving school education before completing relevant level (Sandamali, 2016). Family economic constraint and lack of money to purchase stationary are some causes for dropping out of school education in the Sainthamaruthu division in Sri Lanka (Iyas, 2018).

Thus, socioeconomic status of the family plays an important role in students' education. Families who do not have a high educational background have difficulty in both helping their children with school homework and tackling educational obstacles (Shamila & Rajasingam, 2017). Poor and less educated families appear to generate less capable students than richer and more educated families; nonetheless, students from economically and educationally advantaged families have low voluntary dropout rates and high rates of passing examinations (Fortes et al., 2024). Further, illegal relationships of parents, alcoholism, domestic violence, and conflicts are also causes for students' education dropout. The resilient lifestyle of parents and brothers, temporary jobs and dissatisfaction with salary and low level of income are other factors (Solangaarachchi, 2021). These causes create unstable and hostile environment that can negatively affect students' wellbeing and academic performances. Further, in Sri Lanka, parental illiteracy, neglect from parents, divorce

and parent's extramarital affairs are some other causes that contribute to dropout rates (Ashani & Gunasekara, 2019).

Low parental participation may lead to school dropouts since parents cannot support learning, communicating with teachers, and motivating students to achieve in school, hence leading to failure and dropout (Park, 2006). When parents are disengaged, there are no chances to monitor children's performance, attendance and progress, leading to higher absenteeism, and poor performances (Sandamali, 2016). Additionally, lack of communication between school and parents can prevent early interventions in academic issues. This lack of involvement creates more tendency for students dropping out of school (HeavyRunne & DeCelles, 2002). Similarly, family plays crucial role as the principal transmitter of knowledge, values, attitudes and habits. In Sri Lanka, parental migration, working in distant areas, parents' low interest are some causes for low parental participation (Perera, 2012).

Families in rural households tend to be associated with the agricultural sector, home based industries, manual labor etc (Perera, 2012). Therefore, on the one hand parents of such families cannot afford extra costs of their children's education. On the other hand, some children of such families have no option but to participate in earning activities to support their parents. Consequently, such children dropout of school before completing their education (Perera, 2012).

Considering the Sri Lankan context, family-related challenges have a significant impact on student retention in school. Many families struggle with insufficient or inconsistent income making it difficult to afford books and pay tuition (Iyas, 2018). Some parents are occupied with their jobs or related fields (most of them are farmers), leaving them unable to monitor their students' education (Ashani & Gunasekara, 2019). Some parents prioritize early marriages (especially those of female students), sibling chores or family feuds over education (Perera, 2012). Such challenges in typical families create an environment in which children lose motivation, frequently abandon school, and are more likely to dropout (Silva & Rathnayake, 2024).

3. Methodology

Qualitative research methods are used to observe the teachers' perspectives regarding family-related factors affecting dropouts in school education. According to the Ministry of Education (2017), the total teacher population in the Welimada division is 2717 teachers, which represents the populations for the study. The selection of participants was based on identifying schools that reported high dropout rates within the Welimada division. Thirty teachers of Grades 10 and 11 from various schools in the Welimada division of the Uva province in Sri Lanka were selected as participants, through a purposive sampling method. Teachers who are very engaged with students

like discipline teachers, class teachers, sports teachers participated under the purposive sampling technique. Prior to the interviews, participants were given the information sheet and the consent form and explained the purpose of this research. A maximum of thirty minutes was taken per participant. In-depth interviews, involving detailed, open-ended conversations between the interviewer and the participant, were carried out as it facilitated to capture rich and nuanced insights directly from the perspectives of teachers. Narrative analysis was utilized as a data analysis method. As a way of enhancing validity and reliability of this study, a pilot study was conducted using five participants from the target populations prior to the data collection. In addition, theoretical understanding obtained from the literature review contributed to the validity of the interview guide. To ensure the anonymity and confidentiality of the participants, anonymous names were assigned to the participants by eliminating their identification at any point of the research process.

4. Analysis and Discussion

Data analysis was carried out under the narratives of socioeconomic status of the family including family income, parental involvement, and family structure.

4.1. Family Income

The financial stability of families determines whether children will stay in school due to its direct influence on educational resources.

"When parents lose their financial resources, children lose the opportunity to purchase uniforms, shoes, bags, food and even maintain school related necessities. In such a situation, some students are isolated. Even though they want to go to school, they don't have the ability to do so" (a respondent).

"Many boys of Grade 10 and 11 who are in our area are already engaged in some jobs. In some cases, they are the main source of income for their family, so these students do not think about their education anymore, they want to strengthen their family income" (a respondent).

Based on the participants' views, family income is linked with the school dropout tendency. Lack of good nutrition, uniforms, and school necessities, school absenteeism and dropping out of the children in low-income families were the main issues emphasized by the participants.

Moreover, *"Some parents are economically poor. But they strongly believe that even though they are poor, they should educate their children well and help them to reach high positions one day. Even though, we can see many cases where their children's education is hindered because of being poor*" (a respondent).

"Some s*tudents leave school and work to support the family. Most of the girls after the Ordinary Level (O/L) are now working in garment factories"* (a respondent).

Some girls who complete their (O/L) examinations abandon their education and finding work at garment factories is evidence of how economic factors discourage students from further education.

It is evident that the absence of financial stability within the family usually forces students to stop their education and look for work to help the family. For instance, according to the findings some girls and boys, who are still studying, find employment and sometimes become the main income source of the family. They tend to abandon their education and support the financial needs of their family. Thus, the education related costs remain unaffordable for families living below the poverty line, especially in rural settings like the Welimada Division.

It is evident that the financial struggle of the family is one of the main factors causing dropouts from school education.

The findings are consistent with the previous research. Low-income families often force their children to work in order to earn money for their families, and that restricts them to access school (Das & Mane, 2017; Sandamali, 2016).

4.2. Parental Educational and Occupational Level

Students' school education continuity is affected by family socioeconomic status, as it determines how well parents can secure educational resources for their children.

"Most parents in our school have lower educational qualifications. Hence, their children do not receive adequate support for education from their parents. If we observe children who have given up education, the environment in their homes is like this" (a respondent).

Parents who have lower educational levels generally show less knowledge about the value of education as well as their poor ability to help with school related matters that lead to academic challenges.

"In fact, if we look at the students who dropped out of school last year, there are such issues related to their family; for example, their mother has remarried, or their father, or their mother's new husband. Sometimes parents get married at a young age, and because of these reasons, the parents do not care about the students and do not look after the children. As a result, children are not safe and therefore not motivated to study" (a respondent).

The parental marriage issues similarly create dropout hazards through emotional distress, family disputes, and decreased parenting support. These family changes

sometimes lead students to feel insecure and neglected, therefore affecting their school education.

The educational and occupational level of parents is one of the most important factors affecting the continuity of students' education. In rural areas, parents give less value to education than in urban areas, and therefore they view school as a day care center. This has happened because parents must work until late, and in the meantime, they send their children to school. They have no idea about the value of education. Here, the chance of students dropping out of school is very high.

Thus, most of the participants expressed that socioeconomic status of the family mainly affects school dropouts.

These findings correspond to the available literature regarding the influence of family socioeconomic status on education. The respondents claimed that children in low income or less educated families tend to lack parental support, have unstable family atmosphere, and family conflicts, which impact their academic performance and their risk of dropping out. These findings align with Shamila and Rajasingam (2017) and Forteset al. (2024), who note that economically and educationally disadvantaged families provide less guidance and resources, while Solangaarachchi (2021) highlights that parental issues create unstable environments that negatively affect students' education.

4.3. Parental Involvement

The lack of parental involvement is another issue in school dropouts in the selected area.

"Today's young students have no hope for the future, they have no purpose, they are pushed by their parents, so when the attention of the parents and the parents' attention towards the students decreases their education journey stops naturally" (a respondent).

"Many girls who get married at very young age have not lived with their mothers, either their mothers are abroad or work in Colombo. Under this situation mothers pay less attention or involvement with their children" (a respondent).

Inadequate parental involvement results in a reduced student concern with academic chores making them not interested in education. These comments stress parents who are not attentive or not involved in their children's schooling; students lose focus, leading to disruption of education. Moreover, lack of parental support primarily due to working parents' distance from home, or any other reason that deny parental involvement in the child can lead to her/his instability, ultimately causing dropouts.

It is evident that parents' involvement plays a vital role in the educational journey of students. Most of the participants opined that weak involvement by the parents often leaves students deviating from their studies due to the lack of proper guidance and attention from their parents. When parents fail to show involvement, students may lose interest in education and thus disengage or dropout eventually. In addition to that, the absence of better family conditions, in which parents become alienated because of their job or some other reason, could lead students to end their education.

Many participants stressed that less parental involvement is leading to school dropouts.

These findings confirm previous research on the critical role of parental involvement in students' education. The respondents reported that low parental attention leads to academic neglect and increases the risk of dropouts. This aligns with the findings of Park (2006) and Sandamali (2016), who noted that low parental involvement limits the support for students' learning and monitoring performances thus further increasing dropout tendencies.

4.4. Family Structure

Family structure also plays a significant role in affecting students' likelihood of dropping out of school.

"Due to parents going abroad, the family institution has broken down and as a result, many children have dropped out of school" (a respondent).

"There are children who come to school under the care of their grandparents because their mother or father has remarried. As they do not have proper encouragement from home, there is no one to look after their education, there is a high chance that many of these children will dropout of education. These grandparents are only on the idea that they will feed and take care of them, but they do not motivate children toward education" (a respondent).

Thus, changes in the family structure directly influence students' educational journey, leading to dropouts. Some participants confirmed that children who seem to have parents who spend less time with them often lose attention with their studies.

"There are some children who do household chores and look after their younger brothers and sisters. If these conditions continue, they will be at risk of losing their education" (a respondent).

Thus, family structure is an important factor affecting dropouts in school education. Some students' parents are absent due to work obligations in urban centers or overseas; children, especially in fragmented families caused by remarriages, are

devoid of emotional and educational support for school performance. Their grandparents may be there to provide basic needs such as food and shelter but they often lack the necessary motivation needed for academic pursuit. Such a deficiency in supervision and guidance creates an environment that fosters greater numbers of school avoidance and higher dropout rates among school students.

Moreover, children who also assume household chores; for instance, taking care of their younger siblings or managing the household tasks due to absence of the parents may find difficulty in balancing household responsibilities and education. The stress of performing these house chores may lead to poor school attendance, decreased academic performance, and ultimately dropping out of school. This lack of organization and support in the home setting disrupts the continuity of learning and easily causes students to become unfocused and unmotivated in their studies, ultimately leaving school prematurely.

The above findings align with existing literature; fragmented families or those living under grandparents often lack academic support or emotional support, with increased risk of school dropouts. Students from larger lower income families frequently must contribute household activities, limiting their educational opportunities (Perera, 2012).

5. Conclusion

This study identified the family-related factors affecting dropouts in school education with the perspectives from teachers in the Welimada division, Uva province, Sri Lanka. The key findings revealed that family components substantially impact educational journey by influencing student dropout behavior through factors such as socioeconomic status of the family, including family income, parental involvement, and family structure. Poor family finances push students to dropout of school when they are unable to pay their educational expenses and lower socioeconomic status restricts their access to educational materials and academic support systems. When parents do not participate in their children's education, students' motivation typically decreases leading to school dropouts. The emotional stability of children faces challenges when family structure is involved without parents, single parents or parental remarriage or family conflicts thereby reducing their ability to concentrate on academics. Addressing these family-related challenges is essential to reducing dropout rates.

These findings confirm previous research highlighting the major role of family-related factors in students' educational outcomes. Consistent with the existing literature, low family income, unstable family structure, low parental involvement

and poor socioeconomic status were found to increase the likelihood of school dropouts. This underscores the critical influence of family on students' behaviors.

The results of this study support both Ecological Systems Theory and Social Capital Theory. It implies various family issues, such as poor financial situation, non-stable family structures, and insufficient parent involvement have negative impacts on students' academic performance and increase the risk of dropping out from school.

5.1. Theoretical and Practical Implications

The findings offer theoretical and practical implications by providing suggestions to stakeholders to reduce the dropouts in school education.

Strengthening family support (Ecological Systems Theory) Promote active parenting, emotional support which help children stay motivated and improve family interactions. Establish family counselling programs (Ecological Systems Theory) to address family conflicts, and adjustments, thus helping to stabilize children's home environment.

Promoting extracurricular and social engagements activities (Social capital theory): Improve students' social networks, fostering positive relationships that support interest in education.

Increasing financial support for low income families: Dropout rates can be reduced by ensuring that more money is pumped into the households of the poor to help pay educational expenses and reduce the pressure of economic burdens on the students.

Increasing funding in education: Increase funding in education to ensure equal sharing of financial aid and educational resources.

Giving equal attention and resources for rural schools: The disparity can be shifted between rural and urban schools and have the same quality of education everywhere. This involves the creation of special programs catering to the needs of students from rural backgrounds.

Conducting parental Awareness Programs: Counseling, workshops would be held for the parents regarding the importance of their involvement in the child's education, which would help to pinpoint how a healthy family environment would help in the academic journey and general well-being of the child.

Forming community Support Networks. These networks directly cater to the community through guidance for families, especially those in low-income households. They provide supplies for school, nutritional services, tutoring, and some other things.

Creating a student follow-up system: Schools may have fundamental follow-up system in place where teachers follow-up with students who are frequently absent or exhibit abnormal behavior.

6. Limitations and Future Research

As this is a qualitative research with a smaller sample, the findings cannot be generalized to other areas of the country. Thus, quantitative study could be used in the future to validate the family-related factors affecting dropouts in school education. Another study could be undertaken to explore other factors affecting school dropouts in the same area.

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