Sri Lanka Journal of Marketing
University of Kelaniya - Sri Lanka

SLJM Vol 9 No 3: September - December 2023

ISSN 2719 – 2598 (Online)

Factors Associated with Adoption of Organic Paddy Farming in Puttalam District in the Context of Organic Food Consumption Trends

R. P. R. S. Randunu
Wayamba University of Sri Lanka
sathsaraniramodya1112@gmail.com

N. R. Abeynayake
Wayamba University of Sri Lanka
rabeynayake@hotmail.com

A. G. K. Wijesinghe
Wayamba University of Sri Lanka
kusum_wijesinghe06@yahoo.com

DOI: https://doi.org/10.4038/sljmuok.v9i3.127

ABSTRACT

Amidst a significant uptick in organic product consumption driving the growth of organic agriculture, formulating policies to promote this method necessitates a thorough grasp of the factors influencing farmers' decisions to embrace organic cultivation. This study aims to investigate the determinants of farmers' choices to shift toward green agriculture. A sample of 150 rural paddy farmers was selected from Puttalam district using a multistage sampling technique, and data were collected through face-to-face interviews using a structured questionnaire. Seven key determinants have been discerned as critical contributors to this paradigm shift, such as Health Enhancement, Environmental Protection, Attitude, Economic Profitability, Knowledge of organic farming, Perceived Risk, and Government Support. In light of this, a conceptual model with seventeen hypotheses was created. Structural Equation Model (SEM) analysis was conducted using the Statistical Package for the Social Science (SPSS) and Analysis of Moment Structure (AMOS) to identify the direct, indirect, and mediating effects among the relevant variables. The estimated model revealed strong direct effects of economic profitability and perceived risk on organic farming adoption behavior, while government support had an indirect effect. Moreover, health enhancement demonstrated a significant direct effect on attitude, and knowledge emerged as a strong predictor with both significant direct and indirect effects on the dependent variable. The hypotheses concerning mediated pathways were also supported with partial and full mediators. These findings provide crucial insights for policymakers, guiding the development of appropriate policies and the implementation of sustainable organic farming practices among paddy farmers.

Keywords: *Organic Farming Adoption, Paddy Cultivation, Structural Equation Modeling*

1. INTRODUCTION

1.1. Background Information

Implementing a marketing mix tailored to the agricultural sector, coupled with continuous consumer education on the advantages of engaging in ecological farming for the environment, personal health, and animal welfare, alongside dedicating a budget aligned with the purchase of eco-certified agro-food products, results in a notable surge in the consumption of such items (Chelaru et al., 2023). Moreover, a study has revealed that consumers buy organic food because of their desire to avoid the chemicals used in conventional food production. The use of chemicals in food production is perceived to be associated with long-term and unknown effects on human health (Gomiero, 2018). Consequently, according to world scenario, Germany boasts the largest organic product market in Europe. As of 2021, retail sales for organic products in Germany reached nearly 16 billion euros. Following closely, France secured the second-largest market position, with sales approaching 12.7 billion euros (Statista, 2021). Moreover, Organic Trade Association's data (2022) reveal, in 2022, organic food sales in the United States surpassed $60 billion, marking a significant milestone and setting a new record for the robust organic industry. Hence, a thriving market for organic food items has emerged globally, indicating a growing preference among consumers. This trend not only underscores increased consumer interest in organic products but also serves to encourage the adoption of organic agriculture practices among farmers.

ISSN 2719 – 2598 (Online)

Organic Agriculture is a production system that sustains the health of soils, ecosystems, and people. It relies on ecological processes, biodiversity, and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic Agriculture combines tradition, innovation, and science to benefit the shared environment and promote fair relationships and good quality of life for all involved (IFOAM, 2008).

Meanwhile, Organic farming has experienced significant global expansion, with a total of 68.8 million hectares worldwide being managed under organic agricultural practices in 2017. Among the different regions, Oceania had the largest area of organic agricultural land, covering 35.9 million hectares. Europe followed with 14.6 million hectares, while Latin America had 8 million hectares, Asia had 6.1 million hectares, North America had 3.2 million hectares, and Africa had 2.1 million hectares. In the case of Sri Lanka, the total organic agricultural land, including areas in the process of conversion, amounted to 165,553 hectares (Willer and Lernoud, 2019).

Organic farming stems from an ecological perspective that views nature as a complete entity. Its objective is to establish a sustainable and environmentally balanced agricultural system that yields top-notch food products while safeguarding and harnessing natural resources. The primary focus of organic agriculture is to produce environmentally friendly food items, which constitute the key market output (Kretter and Ubreziova, 2006). Therefore, organic farming has enhanced the quality of food products, leading to an increase in the demand for organic goods. Additionally, farmers who receive higher prices for their products, encounter difficulties in obtaining loans or have alternative sources of income beyond farming are more likely to opt for organic farming (Akram et al., 2022).

Consequently, organic farming is becoming increasingly popular worldwide, leading to significant market growth in the present and future. However, in order to effectively promote the expansion of organic agriculture in developing nations, extensive research is necessary to identify the primary factors that encourage or

ISSN 2719 – 2598 (Online)

impede farmers from embracing organic farming practices in these countries (Karki et al., 2011).

Lohr, (2002) demonstrates the impact of organic farming by highlighting the statistically significant distinctions between counties that have organic farmers and those that do not. These differences encompass a wide range of indicators related to economic, social, and environmental advantages associated with organic agriculture. The organic sector's advancements in resolving production and marketing challenges faced by all farmers are bringing mainstream agriculture closer to achieving sustainability.

As a result, organic agriculture has expanded a lot worldwide. However, a notable challenge arises from the immediate transition to green agriculture without allowing for an experimental period to develop essential elements such as soil quality, irrigation systems, and suitable seeds. By employing a systematic approach, the adoption of organic farming can be effectively promoted in both developed and developing countries, facilitating its dissemination on a larger scale.

1.2. Research Problem

The extensive use of agrochemicals to maximize crop yield has exerted significant pressure on sustainable agriculture, resulting in the degradation of natural resources, environmental pollution, and health hazards. Moreover, emerging marketing patterns reveal that, prior to making a purchase, consumers actively seek information regarding the "natural elements" and potential benefits of a food product (Lakchan and Samaraweera, 2023).

In response to this challenge, organic farming has emerged as a recognized solution worldwide, offering a more sustainable approach to improving the existing agricultural system. Consequently, policymakers in Sri Lanka have implemented new rules and regulations regarding agrochemical usage, acknowledging the urgent necessity of adopting organic farming practices to mitigate health and environmental risks and promote sustainable agriculture. Hence, on October 15, 2021, an extraordinary gazette notification was released by the government, establishing a task force aimed at encouraging research and innovation in the development of environmentally friendly organic fertilizers tailored to local environmental conditions (Ariyarathna et al., 2023).

Rice, being a staple food, plays a vital role in the food supply, particularly in rural areas such as Puttalam, Polonnaruwa, Anuradhapura, and Ampara. In the Yala season of 2022, the cultivated area for paddy reached 481,669 hectares. Among this, 297,519 hectares (61.8%) were accounted for under major irrigation schemes, 116,588 hectares (24.2%) under minor schemes, and 67,562 hectares (14.0%) were classified as rainfed (Department of Census and Statistics Sri Lanka, 2022). However, the Sri Lankan government's sudden decision to shift the agricultural system from inorganic to organic methods has posed significant challenges. The ban on inorganic fertilizers, pesticides, and weedicides has created a collective jeopardy for farmers and consumers. Unfortunately, paddy farmers have been greatly affected by the immediate transition to organic farming, as the inherent nature of organic practices does not provide an instant response or solution to their problems.

From the perspective of farmers, the adoption of organic farming brings forth various challenging consequences. These include lower crop yields, reduced profitability, increased susceptibility to pests and weed infestations, limited access to high-quality organic fertilizers, inadequate knowledge about sustainable agricultural practices, and a lack of awareness regarding traditional farming methods essential for effective implementation. Moreover, the unavailability of reliable traditional seeds further hinders the revitalization of the organic farming system in Sri Lanka.

Hence, it is crucial to conduct timely research to investigate the factors associated with paddy farmers' organic farming adoption behavior and to explore strategies to enhance their behavioral intention towards green farming.

1.3. Objectives of the Study

ISSN 2719 – 2598 (Online)

i. To identify the directly and indirectly, affecting factors to the adoption of organic paddy farming in the Puttalam district

ii. To analyze the mediation effect for the adoption of organic paddy farming in the Puttalam district

2. LITERATURE REVIEW

2.1. Sustainable Development of Agriculture

Sustainable development is a form of development that ensures the satisfaction of current needs while preserving the capacity of future generations to fulfill their own needs. It encompasses two fundamental principles: firstly, the recognition of basic needs, especially those of the impoverished population, which should be given the highest priority; and secondly, the understanding that the environment's ability to meet both present and future needs is constrained by the state of technology and social organization (Keeble, 1988).

Subsequently, the terms "sustainability," "sustainable development," and "sustainable intensification" have frequently been employed as buzzwords, encompassing various interpretations aimed at mitigating the environmental effects of human actions. However, despite the diverse interpretations, the concept of sustainability has gained significant prominence in present-day agricultural policy discussions (Latruffe et al., 2016).

Advancements in modern agriculture have raised concerns about the long-term sustainability of existing production systems. These concerns stem from the extensive use of chemical fertilizers, pesticides, and herbicides, which contribute to the destruction of wildlife habitats, environmental pollution, and potential risks to human health. In response to these apprehensions, various alternative agricultural approaches have emerged, with organic farming being one of the most widely practiced methods in Europe and the United States of America (Rigby et al., 2001).

2.2. Organic Farming

ISSN 2719 – 2598 (Online)

According to Ghosh and Ghosh (2021), organic farming is a viable cultivation option when compared to conventional farming practices due to the growing demand for organically produced food. In addition to financial considerations, organic farming contributes to the well-being of natural resources, soil quality, and overall environmental health. It also exhibits resilience in the face of adverse weather conditions. From the perspective of sustainable development goals, organic agriculture demonstrates outstanding credentials in terms of promoting human health. An organic perspective does not view humans or their actions as separate from the natural world, but rather considers human interests in relation to their influence and overall impact on the environment. It aims to foster a holistic understanding of individual behavior. When "respect for nature" is seen as an interest in the well-being of specific entities, individual animals are recognized as intrinsically relevant. Therefore, both a theocentric and an organic approach share a common foundation based on interconnectedness and interdependence (Rocklinsberg, 2001).

Organic farming, as an alternative agricultural system, offers a multitude of environmental and social advantages when compared to conventional agriculture. It is essential for agricultural professionals to fulfill their responsibility of educating and extending knowledge to farmers and the general public (Malek-Saeidi et al., 2012) in order to enhance the adoption of organic farming practices.

2.3. Organic Farming Adoption Behavior

According to Abu Bakar et al., (2021) fruit farmers in Johor, Malaysia exhibit a moderate level of adoption when it comes to organic farming practices. The majority of these farmers, however, have not embraced organic farming methods. To enhance the organic farming sector, one of the key measures is the establishment of an effective incentive system, as experienced farmers exhibit a higher inclination to produce organic products when they receive adequate support. Therefore, designing and implementing such a system becomes crucial for the overall improvement of the sector (Withanage, 2019). Consequently, seven factors such as Health Enhancement (HE), Environmental Protection (ENP), Attitude (AT), Economic Profitability (ECP),

ISSN 2719 – 2598 (Online)

Knowledge of organic farming (KN), Perceived Risk (PR), Government Support (GS) were identified which were affected to the organic farming adoption behavior with direct, indirect and mediation effect. Mediation occurs when a mediator variable partially mitigates the impact of an exogenous variable on an endogenous construct within the Partial Least Square path model (Hair et al., 2014). When the possible mediation is theoretically taken into account and also empirically tested can the nature of the cause-effect relationship be fully and accurately understood (Hair et al., 2017). Hence, analysis of the mediation effect adds greater value to the study.

2.4. Factors Affected to the Organic Farming Adoption Behavior

The findings of a study conducted by Nayakarathna et al., (2013) indicated that farmers generally hold positive attitudes toward organic paddy farming. However, there are specific factors that impede their transition to this practice. Although farmers recognize the benefits of organic paddy farming, the main challenge they encounter is the lack of immediate effects in terms of yield when compared to non-organic products.

2.4.1. Knowledge of Organic Farming (KN)

In a study conducted by Herath and wijekoon, (2013) it was found that farmers who practiced inorganic farming believed that it provided higher productivity compared to organic farming in the short term, primarily due to their limited awareness and knowledge about the various benefits of organic farming. Furthermore, the lack of strong motivation towards adopting an organic farming system was observed among these farmers. The study also highlighted that farmers' attitudes were directly influenced by their level of knowledge and environmental considerations. Moreover, a higher level of organic knowledge positively influences the belief among professionals that organic farming generates overall benefits (Wheeler, 2007).

2.4.2. Health Enhancement (HE)

ISSN 2719 – 2598 (Online)

According to Cukur et al., (2019) health-related factors have been identified as the most influential factors in farmers' adoption of organic farming. The primary motivation for farmers to engage in organic production is the desire to produce healthy products. According to the perspective of farmers, health benefits are considered the most significant factor in organic agriculture. However, they also perceive a shortage of inputs as a major constraint. Additionally, many farmers believe that organic farming carries a higher level of risk compared to conventional methods (Ranasinghe et al., 2010).

2.4.3. Environmental Protection (EN)

Chouichom and Yamao, (2010) highlighted that the adoption of Organic Farming Systems (OFS) would result in improved soil conditions on farms. They emphasized that soil condition is a finite natural resource that is highly susceptible to degradation caused by agricultural practices like pesticide and chemical usage. Similarly, Patidar and Patidar, (2015) found that the environmental factor played a significant role in influencing farmers' decision to engage in organic farming.

2.4.4. Farmers' Attitude (AT)

According to Chouichom and Yamao, (2010) the interviewees who were organic farmers exhibited a more positive attitude towards organic farming, while the interviewees who were non-organic farmers displayed a certain level of reluctance, primarily due to a lack of motivation. Malkanthi (2020) supports this notion, stating that the health benefits, employment opportunities, environmental protection, and resource enhancement associated with organic farming contribute to a positive attitude among farmers toward transitioning to organic cultivation systems.

2.4.5. Economic Profitability (ECP)

The economic viability of agricultural practices is typically evaluated based on factors such as profitability, liquidity, stability, and productivity. Profitability is often assessed by comparing revenue and costs, either as a difference or a ratio, and can also be approximated using income indicators like farm income (Latruffe et al., 2016). To gain a deeper comprehension of the economic advantages derived from enterprise diversity and integration compared to economies of scale and specialization, it is essential to consider aspects such as risk and uncertainty, as well as the effects of policy changes on this dynamic (Fowler, 1999).

2.4.6. Perceived Risk (PR)

Yanakittkul and Aungvaravong, (2019) investigated the influence of perceived risk, along with other factors like attitude and government policies, on farmers' adoption behavior towards organic farming. They found a negative correlation between perceived risk and farmers' intention to engage in organic farming. This negative correlation implies that higher perceived risks, such as potential agricultural productivity failure, lead to a decrease in farmers' intention to adopt organic farming practices. In fact, an increase of one unit in perceived risk has a corresponding impact on reducing the intention to adopt organic farming (Mardinah et al., 2021).

2.4.7. Government Support (GS)

According to the findings of Yanakittkul and Aungvaravong (2019) and Asadollahpour et al. (2014), government support plays a significant role in influencing the transition to organic farming. As highlighted by Haris (2019), many potential organic farmers face challenges due to the lack of adequate government assistance and extension services. Therefore, it can be argued that the government should create opportunities for the development of the organic farming movement, considering its potential benefits such as improved health, environmental sustainability, and income generation for small-scale farmers. Similar policy interventions have been successfully implemented in developed countries, demonstrating their effectiveness in promoting and advancing the organic farming sector.

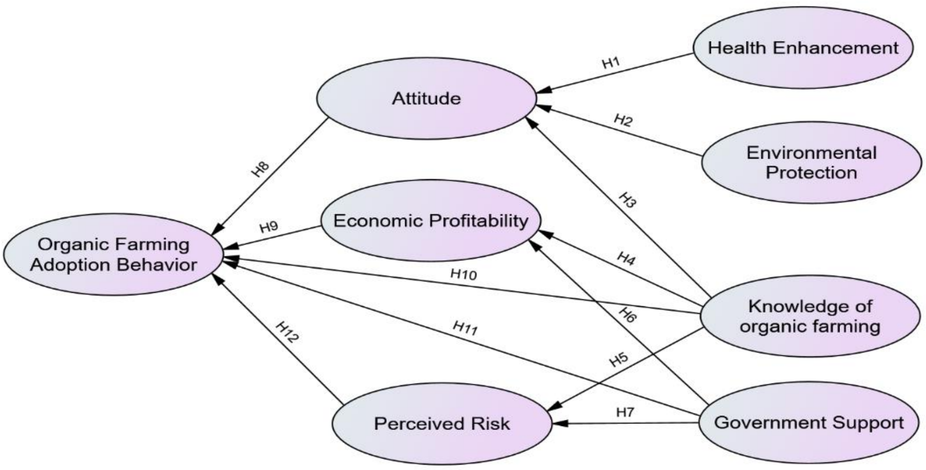
The adoption of organic farming is a multifaceted process influenced by a confluence of factors which are systematically categorized. Seven key determinants have been discerned as critical contributors to this paradigm shift, each playing a pivotal role in shaping the trajectory of agricultural practices through direct, indirect and mediation effects.

3. METHODOLOGY

3.1. Conceptual Framework

Based on the comprehensive literature review, the conceptual framework (Figure 1) was proposed relying on identified factors such as knowledge of organic farming (KN), economic profitability (ECP), health enhancement (HE), environmental protection (ENP), attitude (AT), perceived risk (PR) and government support (GS). These factors were found to have an impact on organic farming adoption behavior (OFAB). Seventeen hypotheses were formulated to explain causal relationships between construct variables including direct, indirect, and mediation effects.

Figure 1: Proposed Conceptual Framework



The formulated seventeen hypotheses are listed below.

- Hypothesis 1: Health enhancement directly impact on farmers' attitude
- Hypothesis 2: Environmental protection directly impact on farmers' attitude

ISSN 2719 – 2598 (Online)

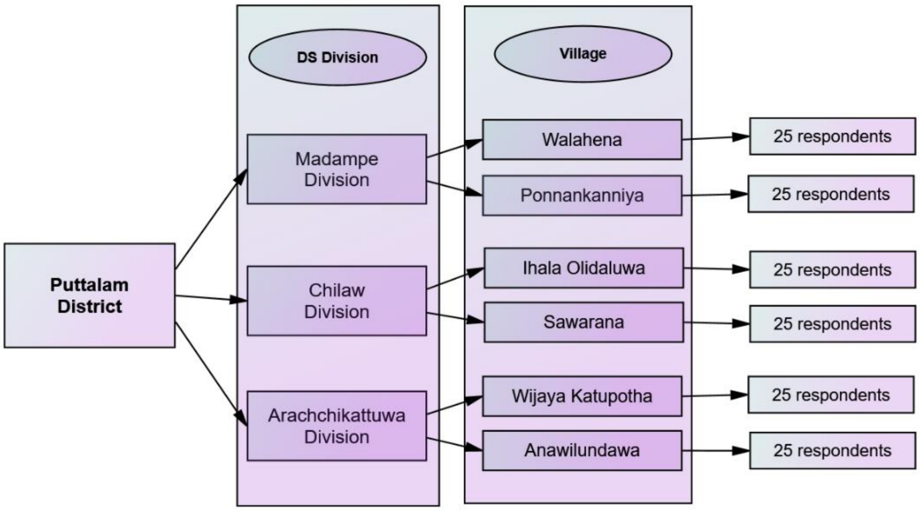
- Hypothesis 3: Knowledge of organic farming directly impact on farmers' attitude
- Hypothesis 4: Knowledge of organic farming directly impact on economic profitability
- Hypothesis 5: Knowledge of organic farming directly impact on perceived risk
- Hypothesis 6: Government support directly impact on economic profitability
- Hypothesis 7: Government support directly impact on perceived risk
- Hypothesis 8: Farmers' Attitude directly impact on organic farming adoption behavior
- Hypothesis 9: Economic profitability directly impact on organic farming adoption behavior
- Hypothesis 10: Knowledge of organic farming directly impact on organic farming adoption behavior
- Hypothesis 11: Government support directly impact on organic farming adoption behavior
- Hypothesis 12: Perceived risk directly impact on organic farming adoption behavior
- Hypothesis 13: Farmers' attitude mediates the impact of knowledge on organic farming adoption behavior
- Hypothesis 14: Economic profitability mediates the impact of knowledge on organic farming adoption behavior
- Hypothesis 15: Perceived risk mediates the impact of knowledge on organic farming adoption behavior
- Hypothesis 16: Economic profitability mediates the impact of government support on organic farming adoption behavior
- Hypothesis 17: Perceived risk mediates the impact of government support on organic farming adoption behavior

ISSN 2719 – 2598 (Online)

3.2. Research Area

Rural areas of the Puttalam district were selected and multistage sampling was done to select a representative sample from the larger population. The first stage involved randomly selecting three divisional secretariat (DS) divisions out of the 16 divisions. The second stage involved selecting two villages from each division. The selected villages were Walahena and Ponnankanniya from Madampe Division, Ihala Olidaluwa and Sawarana from Chilaw Division, and Wijaya Katupotha and Anawilundawa from Arachchikattuwa divisional secretariat division. Finally, a sample size of 150 was chosen by randomly selecting 25 respondents from each village, from the total population of 706 farmers in all the villages as in figure 2.

Figure 2: Multistage Sampling



3.3. Data Collection

Data were collected via face-to-face interviews with respondents using a self-structured questionnaire which consisted of two parts to gather primary data. To ensure that the preliminary questionnaire was clear and easy to understand, a pre-test survey was initially conducted with a small group of 15 respondents. Based on the feedback received from farmers of the pre-test survey, some of the suggested questions were refined and improved to ensure that the questionnaire was more effective and accurate in measuring the proposed conceptual framework.

3.4. Measurements

The administrated questionnaire consisted of two parts: the first part collected demographic information about the respondents, while the second part contained a series of statements to evaluate agreement or disagreement using the five-point Likert Scale which included responses ranging from strongly disagree (1) to strongly agree (5). Forty indicators (Table 1) of the questionnaire were built according to construct variables depicting five statements for each variable. Statements of the structured questionnaire were based on prior research which are based on the organic farming adoption behavior in the Sri Lanka and other countries as well.

Table 1: Measurement Statements

Variable	Abbreviation	Statements
Knowledge of organic farming (KN)	KN1	I know how to make organic fertilizer
	KN2	I know how much organic fertilizer should be applied
	KN3	I know how to use liquid fertilizer for organic cultivation
	KN4	I know how to use natural ingredients as pesticides
	KN5	I know that resistant paddy varieties should be used in organic farming
Economic Profitability (ECP)	ECP1	Organic farming reduces production costs
	ECP2	The ease of soil preparation for organic farming is beneficial to the economy
	ECP3	Due to the use of self-produced fertilizer, the cost of organic farming can be decreased
	ECP4	Organic farming can generate more money due to the high price of organic products
	ECP5	Organic farming help to create employment opportunities in the villages
Health Enhancement (HE)	HE1	Organic products are good for human health
	HE2	The use of artificially made pesticides and herbicides is not used in organic farming, which lowers the risk of cancer and renal problems
	HE3	The nutritional value of organic products is high
	HE4	Aquatic life is not endangered by organic farming
	HE5	Organic farming greatly contributes to a healthy lifestyle.
	ENP1	Organic farming can improve soil fertility

ISSN 2719 – 2598 (Online)

Environmental Protection (ENP)	ENP2	Organic farming can protect natural predators in the environment.
	ENP3	Organic farming conserves environmental water resources
	ENP4	Organic farming does not release toxic gases into the environment
	ENP5	Organic farming makes a huge contribution to environmental conservation.
Attitude (AT)	AT1	Organic farming is a good idea
	AT2	Organic farming contributes to sustainable agriculture
	AT3	Organic farming increases self-satisfaction
	AT4	Engaging in organic farming is a wise practice
	AT5	Green agriculture is a good concept
Perceived Risk (PR)	PR1	Reduced yields are more likely when inorganic and organic are switched over simultaneously
	PR2	When switching to organic farming, there is an increased risk of different consequences (e.g., Difficulties in fertilizer production, protection from insects)
	PR3	Farmers' contentment about organic farming yield may diminish when transitioning to organic farming all at once
	PR4	Due to Sri Lanka's ongoing experimentation, the farmer runs the risk of leaning towards organic farming
	PR5	Simultaneously, doing organic farming without systematic awareness is a risky activity
Government Support (GS)	GS1	The government conducts awareness programs about organic fertilizer production for farmers
	GS2	The government educates farmers on effective ways to ward off disease in crops
	GS3	Government introduces new technologies in organic farming
	GS4	The government issues licenses to identify farmers engaged in organic farming
	GS5	The government provides quality assurance for organic products
Organic Farming Adoption Behavior (OFAB)	OFAB1	I explore different techniques of organic farming
	OFAB2	I always recommend organic farming for all farmers
	OFAB3	I give priority to organic farming
	OFAB4	I will engage in organic farming as soon as possible
	OFAB5	I will do only organic farming in the future

3.5. Data Analysis

Data were analyzed by using descriptive and inferential statistics with the use of Statistical Package for the Social Science (SPSS) with Analysis of Moment Structure

(AMOS). The Kaiser-Meyer-Olkin (KMO) test was applied to assess the adequacy of the sample for multivariate analysis. The internal consistency of each construct was assessed by employing Cronbach's Alpha Reliability Coefficient. Descriptive statistics were used to analyze the demographic factors of the participants. Structural Equation Modeling (SEM) was used in this study to examine the proposed model (Figure 1) using Analysis of Moment Structure (AMOS) in SPSS. Maximum Likelihood method was used to estimate the measurement model (Sadiq, 2018). Model fit was assessed by using Multiple Fit Indices. After best fitting the model, causal relationships among variables were analyzed with direct, indirect, and mediation effects.

4. RESULTS AND DISCUSSION

4.1. Demographic Analysis

The survey indicates that the majority of farmers were male, accounting for 93.3% of the respondents. Female farmers represented a smaller percentage, with only 6.7% of the total. Among the surveyed farmers, the highest number (64%) fell into the over 50 years age range. This suggests that a significant portion of the farming population consists of older individuals. On the other hand, the lowest number of farmers (6.7%) were in the age range of 18-30 years. The majority of farmers had completed secondary education, with 67.3% of respondents falling into this category. A smaller percentage of farmers (8.7%) had achieved tertiary education, indicating a lower level of formal education among the farming population. The majority of respondents (66%) cultivated paddy on an extent of land above 1 acre. In contrast, a smaller percentage (6%) of farmers used land below ½ acre for their own use primarily. As a result of policy changes, the majority of farmers opted for the semi-organic farming method (62.7%), while a smaller proportion chose the organic farming method (22%). Unfortunately, a significant number of farmers (93.3%) reported no experience with organic farming methods. Only a small percentage of farmers (4.7%) had an experience range of 1-5 years, and an even smaller percentage (2%) had more than 10 years of experience with organic farming (Table 2).

Table 2: Demographic Profile of the Sample

Parameter	Category	Percentage (%)
Gender	Male	93.3
	Female	6.7
Age	18-30	6.7
	31-50	29.3
	>50	64.0
Educational Level	Primary	24.0
	Secondary	67.3
	Tertiary	8.7
Extent	<1/2 acre	6.0
	½ - 1 acre	28.0
	>1 acre	66.0
Current Method	Organic	22.0
	Semi-organic	62.7
	Inorganic	15.3
Experience of organic farming	None or <1 year	93.3
	1-5 years	4.7
	6-10 years	0
	>10 years	2.0

Source: Survey Data

4.2. Inferential Statistics (Factor Analysis)

4.2.1.Validity Analysis

Kaiser-Meyer-Olkin (KMO) statistic (0.879), showed the sample adequacy for data analysis. Bartlett's Test of Sphericity showed a significant probability ($P < 0.001$) for correlation adequacy (Table 3). Hence the data were appropriate to perform the confirmatory factor analysis.

Table 3: Results of KMO And Bartlett's Test of Sphericity

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.879
Bartlett's Test of Sphericity Approx. Chi-Square	4144.937
Degrees of freedom	780
Probability	0.000

ISSN 2719 – 2598 (Online)

4.2.2. Reliability Analysis

The reliability of the variables was assessed using Cronbach's alpha, which measures internal consistency. The threshold for satisfactory reliability is typically set at 0.7 or higher. In this study, pruning of indicators was done to exceed the threshold of Cronbach's alpha value. The results presented in Table 4 indicated adequate internal consistency for further implementation of factor analysis.

Table 4: Results of Reliability Analysis

Construct Variable	Indicators	Cronbach's Alpha
Knowledge of organic farming	KN1, KN2, KN3	0.777
Economic Profitability	ECP1, ECP2, ECP3, ECP4	0.878
Health Enhancement	HE1, HE2, HE3, HE4, HE5	0.894
Environmental Protection	ENP1, ENP3, ENP4, ENP5	0.841
Attitude	AT1, AT2, AT4, AT5	0.882
Perceived Risk	PR1, PR2, PR3, PR4	0.910
Government Support	GS2, GS3, GS5	0.832
Organic Farming Adoption Behavior	OFAB2, OFAB3, OFAB4, OFAB5	0.909

4.2.3.Measurement Model Assessment

The most crucial aspect of the measurement model is the factor loadings. These are the standardized coefficients that represent the strength and direction of the relationship between each indicator and its corresponding latent construct. A factor loading close to 1 indicates a strong relationship and a loading closer to 0 suggests a weaker relationship. Ideally, all loadings are to be statistically significant (usually $p < 0.05$) and substantially greater than 0.4 or 0.5, indicating that the indicators adequately represent the latent construct. In this study, to validate the measurement model, rigorous screening was conducted to exclude indicators that had poor factor loading values and insignificant probability values. The results obtained from the measurement model evident that refined indicators significantly and adequately represent the latent factors.

The study results shown in Table 5, indicate that the model fits well. The chi-square value was 471.910 with 360 degrees of freedom (DF), both of which were statistically significant at 0.001 probability level. The CMIN/DF value of 1.311, which is less than 3, suggests a good fit for the model. Furthermore, the Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Incremental Fit Index (IFI) all exceeded 0.95, indicating a very good fit. The Goodness of Fit Index (GIF) was above 0.8, signifying a considerable level of model fit. With at least three indices surpassing 0.95, the model can be reaffirmed as a very good fit. The Root Mean Square Error of Approximation (RMSEA) was also less than 0.06, indicating a very good fit. These results confirm the sufficient fitness of the measurement model with recommended value (Hu and Bentler, 1999). Which provide a foundation for further construct validation and analysis of the hypothesized model.

Table 5: Model Fit Indices

Model / **Indices**	**Measurement Model**	**SEM 1**	**SEM 2**	**Recommended value**
Chi-square	471.910	432.151	49.223	-
Degrees of freedom (DF)	360	359	32	-
Probability	0.000	0.005	0.026	<0.05
CMIN/DF	1.311	1.204	1.538	-
CFI	0.961	0.975	0.979	>0.9
TLI	0.956	0.971	0.970	>0.9
IFI	0.962	0.975	0.979	>0.9
GFI	0.830	0.843	0.942	>0.9
RMSEA	0.046	0.037	0.060	<0.08

Note: SEM 1= Structural model with mediators, SEM 2= Structural model without mediators

4.2.4.Construct Validity

The construct validity of the model was assessed using convergent and discriminant validity measures. Convergent validity was confirmed by analyzing the Average Variance Extracted (AVE) and Composite Reliability (CR) values. The AVE value exceeding 0.5 and the CR value exceeding 0.7 indicated adequate convergent validity for the model.

ISSN 2719 – 2598 (Online)

Discriminant validity was assessed using several criteria. The Maximum Shared Variance (MSV), Maximum Reliability (MaxR(H)), and square root of AVE (√AVE) were examined. The MSV value was found to be lower than the AVE, indicating sufficient discriminant validity. The MaxR(H) value was greater than or equal to 0.7 and the √AVE value was higher than 0.7, providing additional evidence of discriminant validity (Hair et al., 2010).

Based on these analyses, all measurements of discriminant validity indicated clear support for the acceptance of the model. Therefore, the overall validity of the model was deemed adequate to perform Confirmatory Factor Analysis (CFA), as shown in Table 6.

Table 6: Results of The Construct Validity

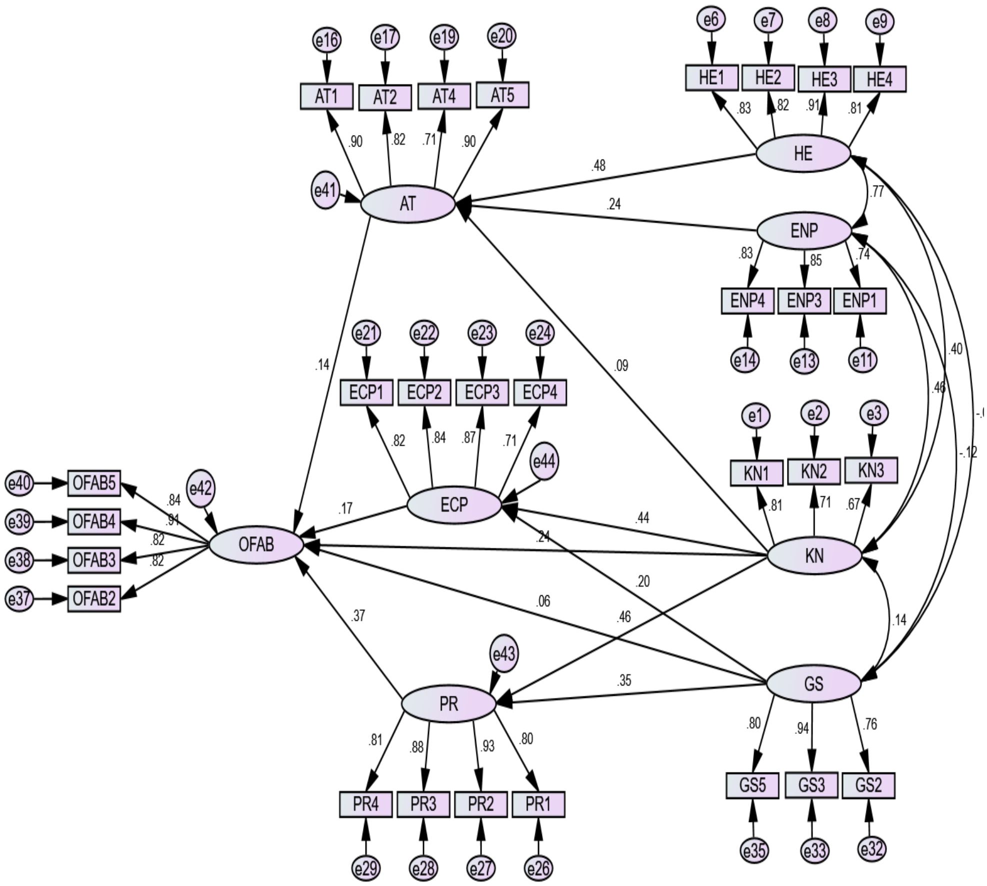
Construct	CR	AVE	MSV	MaxR(H)	GS	KN	AT	ECP	PR	OFAB
GS	.875	.701	.171	.920	.837					
KN	.777	.538	.324	.784	.146	.734				
AT	.912	.635	.171	.929	-.035	.414	.797			
ECP	.884	.657	.208	.895	.267	.439	.274	.811		
PR	.916	.734	.346	.931	.414	.522	.141	.337	.856	
OFAB	.911	.720	.346	.919	.283	.569	.335	.456	.588	.846

Note: Square Roots of AVE Values are Shown in Bold

4.2.5.Structural Model Assessment

The causal relationships between the research model and the proposed hypotheses were examined by using the improved structural equation model (Figure 3). The chi-square value (432.151) was statistically significant with 359 degrees of freedom (DF) at 0.05 probability level. The results testing indices were accepted with CMIN/DF = 1.204, CFI= 0.975, TLI= 0.971, IFI= 0.975, GFI= 0.843 and RMSEA= 0.037 (Table 5). Consequently, the structural model with mediators was a better-fit model with final model fit results.

Figure 3: The Structural Model with Mediators



The results of the hypothesis testing conducted (as presented in Table 7) demonstrate statistically significant findings pertaining to the relationships between various variables and farmers' adoption behavior of organic farming.

The factor loadings for items exceeding 80% were observed within the health factor, suggesting a robust association between the items and the underlying construct of health enhancement. Moreover, the probability value (<0.000) for the direct effect between health enhancement and farmers' attitude was found to be highly significant, indicating robust evidence supporting the relationship between these variables. Consequently, the findings strongly support H1 in the model. Furthermore, the items related to environmental protection and knowledge in the study exhibited factor loadings of approximately above 75% and above 70%, respectively. Consequently, the strong relationships between the items and their corresponding construct variables are evident. However, it is noteworthy that the relationship between farmers' attitudes and environmental protection (H2) is not statistically significant, with a standardized estimation of 0.243. Similarly, although knowledge of organic farming shows a standardized estimation of 0.089 towards attitudes, the hypothesis (H3) is not supported by the proposed model.

The analysis revealed that knowledge significantly influenced both economic profitability (H4) and perceived risk (H5), as evidenced by highly significant probability values (<0.000) for both paths. The standardized estimations for economic profitability and perceived risk were 0.437 and 0.457, respectively. These findings indicate that insufficient knowledge poses a threat to profit earning and adoption behavior due to an increase in perceived risk. Consequently, enhancing farmers' knowledge in this domain becomes crucial for fostering the adoption of organic farming practices.

The items pertaining to government support exhibited factor loadings exceeding 75%, indicating a strong association with the construct variable. The hypothesis tests conducted for government support, represented by H6 and H7, yielded statistically significant direct effects on economic profitability (0.203 standardized estimation) and perceived risk (0.356 standardized estimation), respectively. Consequently, it is required that the government should adopt proactive measures to support and promote organic farming practices, thereby ensuring long-term sustainability. These measures will not only contribute to the economic growth of farmers but also help mitigate risks, ultimately benefiting the agricultural sector as a whole.

Hypotheses H8, H9, H10, H11, and H12 investigate the impact on latent variables, namely attitude, economic profitability, knowledge, government support, and perceived risk, and the dependent variable, organic farming adoption.

ISSN 2719 – 2598 (Online)

The factor loadings for AT1, AT2, AT4, and AT5 were determined to be 90%, 82%, 71%, and 90% respectively, indicating a robust association with the Attitude construct. However, the standardized estimation of the relationship between attitude and organic farming adoption behavior (H8) yielded a value of 0.144. Despite this, the hypothesis is not supported within the model. The probability value (p-value) associated with this path was 0.061, which is close to the commonly used significance threshold of 0.05. This suggests that the hypothesis is situated near the threshold of statistical significance.

The construct of economic profitability demonstrated factor loadings above 70% with items (ECP1, ECP2, ECP3, and ECP4) and a standardized estimation of 0.172. The probability value of 0.043 indicates a statistically significant direct impact of economic profitability of farmers on their adoption behavior toward organic farming (H9). Organic farming practices often require distinct approaches compared to conventional farming, such as the utilization of organic fertilizers, crop rotation, pest management techniques, and reduced reliance on synthetic inputs. These practices can influence costs, yields, and market opportunities, subsequently affecting the economic profitability of organic farming. The adoption of organic farming practices presents both challenges and opportunities in terms of economic profitability. During the transition from conventional to organic farming, there may be initial costs involved, such as certification fees, adjustments to equipment or infrastructure, and potential fluctuations in yields during the conversion period. However, in the long run, organic farming can offer huge benefits such as reduced input costs, improved soil health, and potential premium prices for organic products in the market.

Knowledge plays a pivotal role in driving the adoption of organic farming practices. The level of farmers' knowledge regarding organic farming techniques, principles, and benefits holds significant influence over their willingness and capability to embrace organic farming practices (H10), as reflected by a standardized estimation of 0.237 and a significant probability value of 0.033. A comprehensive understanding of organic farming provides farmers with essential insights into the methods, benefits, and challenges associated with organic practices. This knowledge empowers farmers by giving them the necessary skills to implement organic techniques effectively. It includes understanding principles such as soil health management, natural pest control, crop rotation, and composting. Armed with this knowledge, farmers can make informed decisions on organic inputs, optimal planting and harvesting times, and seamlessly integrate organic methods into their existing agricultural systems. Additionally, being well-versed in organic farming allows farmers to anticipate and address potential challenges, such as pest management, nutrient deficiencies, weed control, and targeted marketing for organic products. Ultimately, a robust knowledge base in organic farming enables farmers to navigate the complexities of adopting and successfully practicing organic methods.

According to the findings of direct effect, government support is not identified as a crucial factor in adoption behavior. The direct impact of government support on organic farming adoption is not statistically significant, with a standardized estimation of 0.057 and a probability value of 0.474. As a result, the hypothesis (H11) is rejected by the model. However, it is worth noting that there may exist an indirect effect of government support through mediators. This suggests that while the direct impact of government support on adoption behavior is not significant, there could still be other factors or pathways through which government support indirectly influences the adoption of organic farming practices. Further exploration of these potential mediators could provide valuable insights into the relationship between government support and organic farming adoption.

The study findings indicate that the items related to perceived risk exhibit higher factor loadings (PR1 - 80%, PR2 - 92%, PR3 - 88%, and PR4 - 81%), indicating a strong association with the perceived risk construct. The standardized estimation for the relationship between perceived risk and organic farming adoption behavior is 0.368. Importantly, perceived risk demonstrates a significant direct effect on organic farming adoption behavior (H12) at a probability level of 0.001. To encourage the adoption of organic farming, it's crucial to address and mitigate farmers' perceived

ISSN 2719 – 2598 (Online)

risks. This involves providing relevant information, training, and support to enhance their understanding of risk management specific to organic practices. By dispelling misconceptions and sharing success stories, best practices, and case studies, farmers can gain confidence and be more inclined to adopt organic farming, contributing to a positive and supportive environment for their transition.

Table 7: Hypothesis Testing Results

Hypothetical Correlation	Path	Standardized Estimation	Probability Value	Decision
H1	AT ← HE	0.482	<0.000***	Accepted
H2	AT ← ENP	0.243	0.061	Rejected
H3	AT ← KN	0.089	0.272	Rejected
H4	ECP ← KN	0.437	<0.000***	Accepted
H5	PR ← KN	0.457	<0.000***	Accepted
H6	ECP ← GS	0.203	0.017*	Accepted
H7	PR ← GS	0.354	<0.000***	Accepted
H8	OFAB ← AT	0.144	0.061	Rejected
H9	OFAB ← ECP	0.172	0.043*	Accepted
H10	OFAB ← KN	0.237	0.033*	Accepted
H11	OFAB ← GS	0.057	0.474	Rejected
H12	OFAB ← PR	0.368	<0.000***	Accepted

*Significant at; *** $p< 0.001$, ** $p<0.01$, * $p<0.05$*

4.2.6.Mediation Effect Assessment

The purpose of the study was to examine the mediation effects on the proposed hypothetical model. To assess the direct effects, a structural model was tested without the inclusion of mediators (Attitude, Perceived Risk, and Economic Profitability). The results of the model indicated that the chi-square value was 49.223, with 32 degrees of freedom, and the significance level was 0.05. The model demonstrated an acceptable fit with the following indices: CMIN/DF = 1.538, CFI = 0.979, TLI =

0.970, IFI = 0.979, GFI = 0.942, and RMSEA = 0.060 (Table 5). Furthermore, the proposed hypotheses were evaluated through path analysis to determine their performance.

The utilization of mediator variables in research has gained significant attention among researchers due to their ability to shed light on the influence of independent variables on dependent variables. By dissecting complex causal relationships, mediators help uncover the underlying mechanisms that drive these relationships (Chen and Hung, 2016). In this study, structural equation modeling (SEM) is employed to construct a multiple mediator model. Our focus is on defining and understanding the concepts of total effect and indirect effect, while also delving into the calculation of mediating effects.

According to the conceptual model, the multiple mediation effect is analyzed by direct and indirect paths. The multiple mediators such as attitude, economic probability and perceived risk to relationship between knowledge of organic farming and organic farming adoption behavior are explain by the structural model with mediators and structural model without mediators.

The role of attitude as a mediator in the relationship between organic farming adoption behavior and knowledge (Figure 4) was investigated in this study. The direct effect (H10) was found to be significant and accepted within the both model (Table 8). However, the indirect effect, which reflects H8 and H3, was not supported in the structural model that included mediators. This suggests that attitude does not act as a mediator in the model under consideration. Consequently, H13 is rejected in the study. However, the direct relationship between adoption behavior and knowledge was supported in the structural model without mediators, with a standardized estimation of 0.549 and a significant probability ($P<0.000$).

The mediation effect is characterized by the presence of direct and indirect paths. The proposed hypotheses of H14 and H15 explain the multiple mediator effects related to economic profitability and perceived risk on the relationship between knowledge and

Sri Lanka Journal of Marketing
University of Kelaniya - Sri Lanka
SLJM Vol 9 No 3: September - December 2023
ISSN 2719 – 2598 (Online)

the adoption behavior of organic farming. Figure 4 illustrates the indirect and direct paths of SEM 1. The direct path between adoption behavior and knowledge is supported in both SEM1 and SEM2 (refer to Table 8). Furthermore, the indirect paths in SEM1 provide support for H9 and H4 regarding economic profitability, as well as H12 and H5 concerning perceived risk. The presence of support for both direct and indirect paths indicates a partial mediation effect. Consequently, according to the model, economic profitability and perceived risk act as partial mediators in this path. Therefore, the proposed conceptual model accepts hypotheses H14 and H15.

Figure 4: Results of Direct and Indirect Paths of SEM 1 Relevant to the Relationship between KN and OFAB

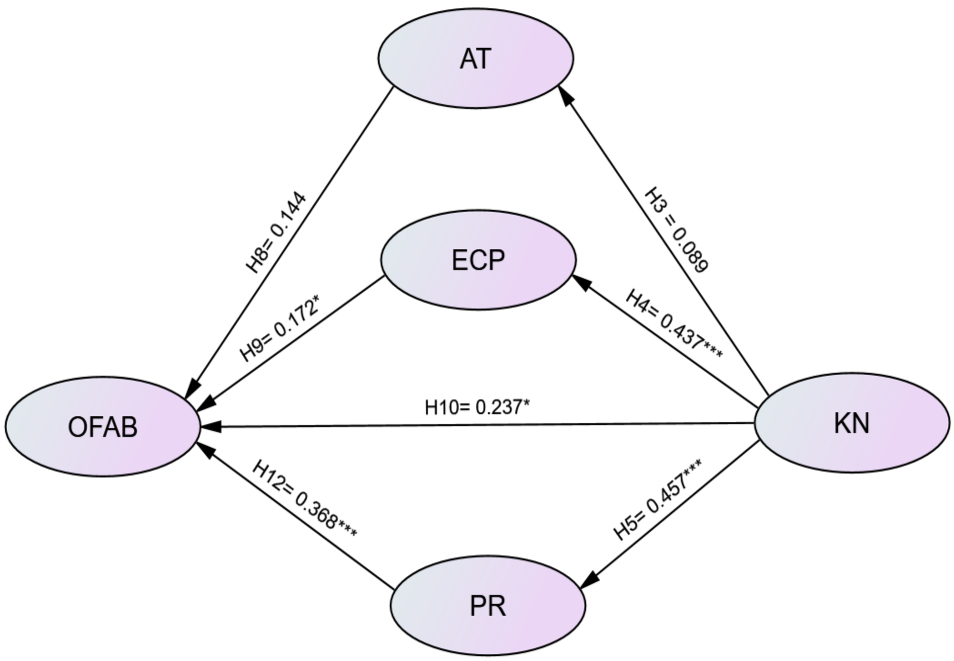


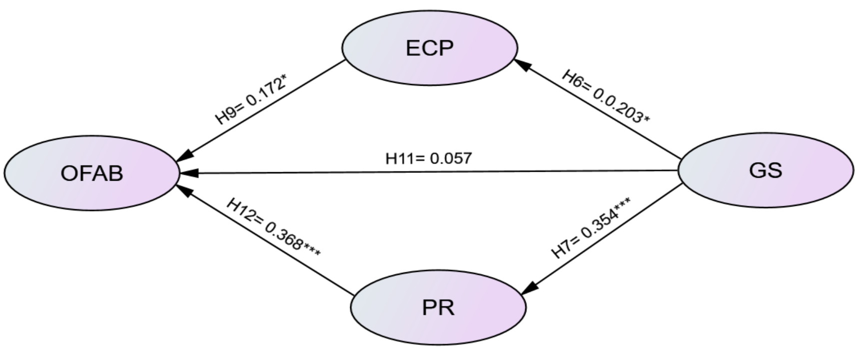
Table 8: Path Analysis results within SEM1 and SEM2

Path	Decision	
	SEM1	SEM2
OFAB ← KN	Accepted (H10)	Accepted
OFAB ← AT ← KN	Rejected (H8 and H3)	-
OFAB ← ECP ← KN	Accepted (H9 and H4)	-
OFAB ← PR ← KN	Accepted (H12 and H5)	-

OFAB ← GS	Rejected (H11)	Accepted
OFAB ← ECP ← GS	Accepted (H9 and H6)	-
OFAB ← PR ← GS	Accepted (H12 and H7)	-

The hypothesized relationships of H16 and H17 elucidate the various mediator effects associated with economic profitability and perceived risk in the context of the relationship between government support and the adoption behavior of organic farming. Figure 5 provides a visual representation of the direct and indirect paths in SEM 1. Notably, the direct path between adoption behavior and government support lacks support in SEM1. However, the structural model, without mediators, demonstrates a significant direct relationship between adoption behavior and government support (Table 8), with a standardized estimation of 0.189 and a probability value of 0.016. Furthermore, the indirect paths in SEM1 offer evidence supporting H9 and H6 concerning economic profitability, as well as H12 and H7 regarding perceived risk. Despite the absence of a significant direct effect in SEM1 between the relevant key variables, this suggests that there is no direct impact, but rather an indirect effect. This scenario indicates that economic profitability and perceived risk act as full mediators in the proposed model concerning the relationship between organic farming adoption behavior and government support. Consequently, H16 and H17 receive support within the proposed model.

Figure 5: Results Of Direct and Indirect Paths Of SEM 1 Relevant to The Relationship between GS and OFAB



ISSN 2719 – 2598 (Online)

Finally, out of the seventeen hypotheses proposed in this study, twelve were supported by the model, while five hypotheses were not supported. This indicates a significant level of alignment between the empirical findings and the proposed model. Consequently, this research study demonstrates a strong level of concordance with the proposed model, highlighting the robustness and effectiveness of the framework employed.

5. CONCLUSION

This study employs structural equation modeling to investigate the adoption behavior of organic paddy farming in the Puttalam district. The empirical findings reveal that several latent variables, namely economic profitability, knowledge, and perceived risk, directly influence the adoption behavior of organic farming. Additionally, knowledge of organic farming and perceived risk indirectly impact the adoption behavior. Health enhancement demonstrates a direct effect on attitude, which contributes to the change in farmers' adoption behavior to some extent. Moreover, economic profitability and perceived risk play crucial roles as mediators. They exhibit partial and full mediation effects, respectively, in the relationship between knowledge and organic farming adoption behavior, as well as government support and organic farming adoption behavior. Therefore, government support and knowledge of organic farming should be prioritized as significant factors that foster optimistic outcomes.

5.1 Recommendations

To promote the adoption of organic farming among paddy farmers, it is crucial to establish a reliable system for identifying organic farmers. Currently, Sri Lanka lacks a proper licensing or identification system for organic farmers. As a result, consumers are unable to distinguish whether a farmer is engaged in organic farming or not. Therefore, it is essential to introduce a licensing system that certifies farmers involved in organic cultivation and financial institutions can offer reduced interest rates or grants to farmers in the certification process. This initiative will serve to inspire farmers and foster trust among both agricultural producers and consumers.

SLJM Vol 9 No 3: September - December 2023

ISSN 2719 – 2598 (Online)

A key obstacle to shifting from conventional to organic farming is the shortage of high-quality organic fertilizers. Addressing this, the government should organize more effective awareness programs and training sessions for officers, farmers, and fertilizer producers. Past initiatives have had limited success, highlighting the need for comprehensive awareness programs with practical training. Furthermore, implementing a quality certification/assurance system for organic fertilizers is essential to guarantee the identification and availability of high-quality products in the market.

Building trust in organic farming is crucial for its adoption, as many farmers believe that consistent profits cannot be earned through organic cultivation. Encouraging farmers by introducing advanced technology, providing guidance, and fostering trust in the potential for high profits can help overcome this perception.

A strong recommendation is put forth to actively champion the creation of financial products and incentives designed explicitly for organic farmers. This advocacy involves promoting initiatives such as advocating for preferential interest rates, grants, or loans with favorable terms, all with the aim of providing substantial support to those committed to organic farming practices. Equally vital is the encouragement for the banking sector to allocate resources for research and development in the realm of organic farming.

The government's current nationwide rules and regulations for organic agriculture present challenges for those without prior experience. A suggested approach is to start with a small village as a pilot project, offering guidance and showcasing positive outcomes. Establishing development projects like organic villages or zones, with one village per district, can effectively expand organic farming by demonstrating success and increasing interest and profitability among farmers.

Collaborating with agricultural agencies and organic farming associations to build a network of support can include sharing best practices, providing access to resources, and creating opportunities for joint projects for further improvement of the industry.

Furthermore, efforts should be made to develop the market for organic products by highlighting their health and environmental benefits. While there is already a growing market for organic products, comprehensive promotional strategies such as advertisements, billboards, and leaflets should be employed to sustainably expand the cultivation of organic products.

5.2. Limitations and Future Research

This research examines seven factors influencing paddy farmers' adoption of organic farming but acknowledges potential unexplored factors. Future research should incorporate these, enhancing the model. Another limitation is the study's focus on three Divisional Secretariat divisions, affecting generalizability. To address this, expanding the sample to include all thirteen DS divisions in the Puttalam district is recommended for a more comprehensive understanding. Extending the study to consider additional factors and a larger sample size throughout the entire district will yield more robust findings, offering valuable insights for guiding organic farming practices in Sri Lanka.

6. REFERENCE

Abu Bakar, T. H. S. T., Shukri, N. A. S. M., Liew, J. Y., Zakaria, S., Mahshar, M. & Rosli, F. (2021). Factors impinging fruit farmers adoption of organic farming practices in Johor, Malaysia. *IOP Conference Series: Earth and Environmental Science, 756*(1), https://doi.10.1088/1755-1315/756/1/012045

Akram, M.W., Akram, N., Hongshu, W., Andleeb, S., Rehman, K. & Hassan, F. (2022). Investigating the leading drivers of organic farming: A survival analysis. *Ciência Rural, 52*(7), https://doi:10.1590/0103-8478cr20200781

Ariyarathna, S. M. W. P. K., Nanayakkara, K. G. M. & Thushara, S. C. (2023). A conceptual model to assess sustainable agriculture potentials to adapt organic fertilizers among rice farmers in Sri Lanka. *SSRN Electronic Journal*, 555–573. https://doi:10.2139/ssrn.4475449

Asadollahpour, A., Najafabadi, M. O. & Hosseini, J. (2014). Factors affecting the conversion to organic farming in Iran: A case study of Mazandaran rice producers. *Sci.Int.(Lahore), 26*(4), 1665–1670.

Chelaru, M., Holerga, T. A. & Zemeleaga, C.G. (2023). Study on the consumption and demand of organic food products. *"Ovidius" University Annals, Economic Sciences Series, XXIII*(1), 298–303.

Chen, L. & Hung, H.C. (2016). The indirect effect in multiple mediators model by structural equation modeling. *European Journal of Business, Economics and Accountancy, 4*(3), 36–43.

ISSN 2719 – 2598 (Online)

Chouichom, S. & Yamao, M. (2010). Comparing opinions and attitudes of organic and non-organic farmers towards organic rice farming system in North-Eastern Thailand. *Journal of Organic Systems, 5*(1), 25–35.

Cukur, T., Kizilaslan, N. & Kizilaslan, H. (2019). Analysis of the factors affecting the adoption of organic farming in Turkey: The case of Samsun Province. *Applied Ecology and Environmental Research, 17*(6), 14001–14008. https://doi:10.15666/aeer/1706_1400114008

Department of Census and Statistics Sri Lanka (2022). *Paddy Statistics 2022 Yala Season.*

Patidar, S. & Patidar, H. (2015). A study of perception of farmers towards organic farming. *International Journal of Application or Innovation in Engineering & Management, 4*(3), 269–277.

Fowler, S. (1999). Factors affecting the profitability of organic farms. *Elm Farm Research Centre Bulletin.*

Ghosh, A. & Ghosh, A. (2021). Organic farming: An approach towards sustainability.

Gomiero, T. (2018). Agriculture and degrowth: State of the art and assessment of organic and biotech-based agriculture from a degrowth perspective. *Journal of Cleaner Production, 197*(2), 1823–1839. https://doi.org/10.1016/j.jclepro.2017.03.237

Hair, J., Hair, J., Anderson, R., Babin, B. & Black, W. (2010). *Multivariate data analysis.* Australia: Cengage.

Hair, J. F., Hult, G. T. M. & Ringle, C. M. (2017). A primer on partial least squares structural equation modeling (PLS-SEM).

Haris, N. B. M. (2019). Factors influencing the decision of farm organic practices in Malaysia .

Herath, C. S. & Wijekoon, R. (2013) Study on attitudes and perceptions of organic and non-organic coconut growers towards organic coconut farming. *Idesia (Arica), 31*(2), 5–14. https://doi:10.4067/s0718-34292013000200002

Hair, J. J. F., Sarstedt, M., Hopkins, L. & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research.

Hu, L. & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives structural equation modeling. *A Multidisciplinary Journal, 6*, 1–55. https://doi.org/10.1080/10705519909540118

IFOAM (2008). Definition of organic agriculture IFOAM. *Organics International.*

Karki, L., Schleenbecker, R. & Hamm, U. (2011). Factors influencing a conversion to organic farming in Nepalese tea farms. *Journal of Agriculture and Rural Development in the Tropics and Subtropics, 112*(2), 113–123

Keeble, B. R. (1988). The Brundtland report: Our common future. *Medicine and War, 4*(1), 17–25.

Kretter, A. & Ubreziova, I. (2006). Factors of successfulness of organic markets. *Agricultural Economics, 52*(8).

Lakchan, U. G. C. & Samaraweera, G. C. (2023). Factors affecting impulsive buying behavior of organic. *Sri Lankan Journal of Business Economics, 12*(I), 79–92.

Latruffe, L., Diazabakana, A., Bockstaller, C., Desjeux, Y., Finn, J., Kelly, E., Ryan, M. & Uthes, S. (2016). Measurement of sustainability in agriculture: A review of indicators. *Studies in Agricultural Economics, 118*(3), 123–130.

Lohr, L. (2002). Benefits of US organic agriculture. *The Consumers Choice Council.*

Malek-Saeidi, H., Rezaei-Moghaddam, K. & Ajili, A. (2012). Professionals' attitude towards organic farming: The case of Iran. *JAST, 14*, 37–50.

Mardinah, Fuady, I. & Sutarjo, M. A. S. (2021). Factors affecting the intention of whistleblowing behavior. *Bongaya Journal for Research in Accounting (BJRA), 4*(2), 54–60.

Nayakarathna, N. M. S. K., Athauda, A. M. T. P., Abeynayake, N. R. & Anjalee, G. H. I. (2013). Farmer perception and attitude towards organic paddy farming in Kurunegala district. *Proceedings of 12th Agricultural Research Symposium.*

Organic Trade Association (2022). *Market Analysis, Organic Trade Association.*

Malkanthi, P. S. H. (2020). Farmers' attitude towards organic agriculture: A case of rural Sri Lanka. *Contemporary Agriculture, 69*(1–2), 12–19.

Ranasinghe, R. A. K. M., Mahaliyanaarachchi, R. P., Sivashankar, P., Hettiarachchi, I. C. & Bandara, B. E. S. (2010). Factors affecting vegetable farmers' preference towards organic farming.

Rigby, D., Woodhouse, P., Young, T. & Burton, M. (2001). Constructing a farm level indicator of sustainable agricultural practice. *Ecological Economics, 39*(3), 463–478.

Rocklinsberg, H. (2001). Organic and theocentric perspectives on the ethics of regarding animals as food. *EurSafe, 83*, 406–408.

Sadiq (2018). Determinant power of public service motivation for job satisfaction and customer service orientation: In case of people's Republic of China. *Open Journal of Social Sciences, 06*(01), 29–42.

Willer, H. & Lernoud, J. (2019). *The World of Organic Agriculture, Statistics and Emerging Trends.*

Withanage, D. P. (2019). Analyzing the factors influencing farmers' willingness to produce safe agricultural products: Evidence from vegetable and rice farmers in Sri Lanka. *Journal of Economics and Sustainable Development, 10*(2), 169–178.

Yanakittkul, P. & Aungvaravong, C. (2019). Proposed conceptual framework for studying the organic farmer behaviors. *Kasetsart Journal of Social Sciences, 40*(2), 491–498.