

The Mediating Role Technology Adoption in the Relationship between Financial Factors and Economic Well-Being in Agricultural Context

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To Link this Article: <http://dx.doi.org/10.6007/IJARBS/v12-i13/14147> DOI:10.6007/IJARBS/v12-i13/14147

Published Date: 13 June 2022

Abstract

Due to the inadequacy of the related research, the key objective of this research is to determine the impact of financial antecedents on growers' agricultural technology adoption and economic well-being. A cross sectional survey was carried out among Sri Lankan coconut growers who were chosen through the multi stage random sampling procedure. Based on the PLS-SEM results, all the direct associations between financial factors (financial knowledge, financial behaviour), and economic well-being were accepted. Moreover, two variables together explained 87.9% of the variance in economic well-being. The mediating effect of technology adoption between financial knowledge, financial behavior and economic well-being was also revealed significant. The current study is addressed the existing gaps in the field of family economics and management, and understand the impact of financial factors on agricultural technology adoption and economic well-being. Moreover, it guides policy makers in developing policies to improve well-being by improving financial related factors among individuals, particularly in developing countries, in order to reduce the poverty.

Keywords: Economic Well-Being, Financial Behaviour, Financial Knowledge, PLS-SEM, Technology Adoption.

Introduction

Economic well-being analysis and measurements are important topics for countries throughout the world that are working to develop efficient and effective policies to eliminate

social inequities and improve people's quality of life. Furthermore, economic well-being is a multifaceted concept that encompasses several areas of people's life. The majority of its aspects are difficult to measure and rely on subjective assessments (OECD, 2013). This means that there is no single, universal definition of economic well-being or a unique method for measuring it. Multidimensionality complicates the assessment of economic well-being and necessitates the use of a variety of indicators, resulting in a slew of theoretical, methodological, and empirical issues.

Despite a growing corpus of literature on economic well-being indices that incorporate economic, social, and environmental issues to quantify the quality of economic well-being, the factors that influence the concept are still not documented well (OECD, 2013). The economic well-being is a multidimensional concept, and numerous of its elements strongly linked to one another, hence, a comprehensive framework is needed to assess the economic well-being (OECD, 2011).

The latest research has encouraged the need to identify and understand the antecedents of an individual's economic well-being (Wijekoon et al., 2021a;b). Unfortunately, there are scant studies that undertake especially financial-related factors in determining economic well-being (Wijekoon et al., 2021a;b), thus motivating the present study to address this gap. Even though, very few previous studies identified financial antecedents of economic well-being (Wijekoon et al., 2021a;b), still inconsistencies were found. Further, according to the best of the knowledge of the authors, the influence of technology adoption as a mediator between financial factors and economic well-being is scarce in previous literature. Therefore, the two major aims of the current research are to identify the financial antecedents of economic well-being, and to find out the mediation effect of agricultural technology adoption between financial factors and economic well-being. Hence, this study addresses several gaps in the context of both agricultural technology adoption and economic well-being.

Literature Review

Economic Well-Being

"Economic well-being is an economic status that has sustainably adequate economic resources to live a comfortable life" (Xiao, 2013, p. 573). The OECD (2015) describes that "economic well-being is multidimensional, covering aspects of life ranging from civic engagement to housing, from household income to work-life balance, and from skills to health status" (p. 1). Individual freedom, spiritual and intellectual richness, and interpersonal relations are just a few of the characteristics that go beyond the economic measurement of income or wealth when it comes to determining an individual's or a nation's economic well-being (Brugnoli et al., 2009). OECD (2011) also stated that "since economic well-being is a complex phenomenon and many of its determinants are strongly correlated with each other, assessing economic well-being requires a comprehensive framework that includes a large number of components and that, ideally, allows gauging how their interrelations shape people's lives" (p. 2). Moreover, the OECD (2013) report has clearly mentioned that economic well-being is a vital parameter for overall well-being. According to the Family Economics and Management literature, there are several dimensions of economic well-being (Turbeville et al., 2019); physical, social, emotional, intellectual, vocational, environmental, spiritual, and financial.

Financial Knowledge

Financial knowledge is “the ability to understand financial concepts and positively related to financial practices such as, cash flow management, credit management, savings, and investment” (Robb & Woodyard, 2011, p. 65). According to Kholilah and Iramani (2013), financial knowledge variable includes many indicators including “1) knowledge of interest and credit, 2) knowledge related to financial budget preparation, 3) knowledge of investment in deposits, 4) knowledge of investment shares, 5) knowledge of how to invest in property, 6) knowledge of investing in mutual funds, and 7) knowledge of insurance” (p. 72).

Lee et al (2020) found a correlation between financial knowledge and well-being. Moreover, a positive relationship between financial knowledge and economic well-being was revealed by Wijekoon et al (2021a; 2021b). Further, even with different respondents and contexts financial knowledge was proved to have a positive relationship with both financial as well as economic well-being, because the concept emphasizes the importance of individuals’ ability to access to financial information and financial resources in order to achieve higher economic well-being (Muller & Theuvsen, 2015). Moreover, they also found that the impact of financial knowledge on technology adoption. In another study with Sri Lankan coconut growers, Wijekoon et al (2021a) detected that the positive influence of growers’ financial knowledge on their agricultural technology adoption.

Financial Behaviour

Financial behavior is “the acquisition, allocation, and use of financial resources oriented toward some goal” (Topa et al., 2018, p. 3). According to Xiao (2008), financial behavior can be described as desirable or positive behavior that consumer economists advise as ways to promote financial well-being. Gudmunson and Danes (2011) identified two forms of interrelated financial behavior types to further highlight the mechanisms that contribute to financial behavior. Its most basic form is a series of actions taken over time, for instance, earning, spending, saving, and gifting.

Individuals with positive financial behaviors manage their finances better to achieve higher economic well-being (Brilianti & Lutfi, 2020). Later, similar results were found by Wijekoon et al (2021a; 2021b). According to Yoshino et al. (2020), financial behavior plays an important role in FinTech adoption. Walsh and Lim (2020) found financial behavior as one of the key factors that influence personal financial management technology adoption in their study on millennials’ adoption of personal financial management technologies. With more financial know-how, and positive financial behaviors in households over the generations and FinTech in their everyday activities, strong network externalities will further increase in adoption of FinTech, and with the B40 population in Malaysia, it was further proved by Magli et al in 2021.

Technology Adoption

The decision to acquire and employ a new innovation is known as technology adoption. According to Rogers (2003), innovation or new technology adoption was taken place in several steps (innovators, early adopters, early majority, late majority, and laggards), and these steps are based on the personality traits of the people or farmers in agriculture. According to Wu et al (2010), improved technology adoption has a positive influence on the well-being of Chinese paddy growers. Awotide et al (2015) investigated the importance of enhanced agricultural technology adoption on smallholder farmers increased agricultural productivity

and well-being. Moreover, in their two studies with Sri Lankan coconut growers, Herath and Wijekoon (2013; 2021) found that fertilizer application, and adoption of recommended technologies were important to increase the coconut yield and the income, hence their economic well-being too. Therefore, based on the discussed literature following hypotheses and framework (Figure 1) could be suggested.

H₁: Financial knowledge positively influences the coconut growers' technology adoption.

H₂: Financial behavior positively influences the coconut growers' technology adoption.

H₃: Financial knowledge positively influences the coconut growers' economic well-being.

H₄: Financial behavior positively influences the coconut growers' economic well-being.

H₅: Technology adoption positively influences the coconut growers' economic well-being.

H₆: The association between financial knowledge and economic well-being will be mediated by technology adoption.

H₇: The association between financial behavior and economic well-being will be mediated by technology adoption.

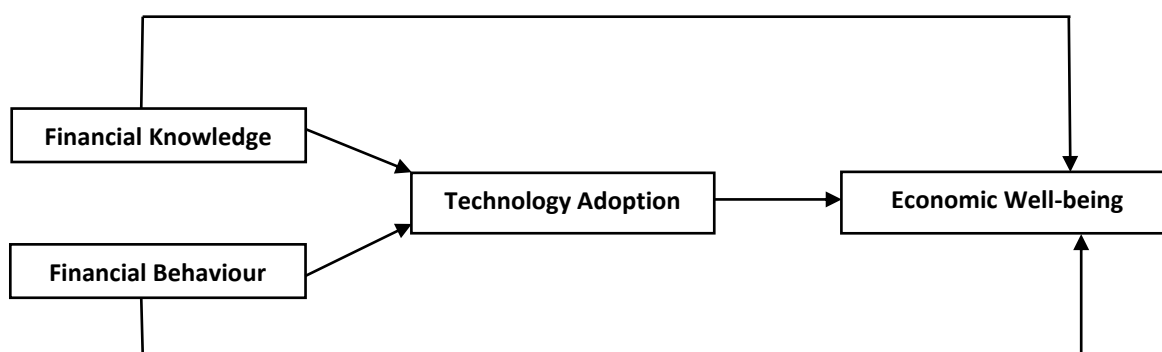


Figure 1: Conceptual Framework

Research Methodology

Participants, Design, and Instrument

Total number of 416 Sri Lankan coconut growers were chosen from the Coconut Triangle in Sri Lanka implementing multi-stage random sampling method. Instrument validity, and reliability were assured with a pre-test of 40 coconut growers.

The 13 "Yes or No" statements derived from Hogarth and Hilgert (2002) were used to measure financial knowledge. The measures of financial behavior were derived from Sabri et al (2012), which included 12 five-point Likert scale items that ranged from never (1) to extremely often (5). To explore technology adoption, Abdekhoda et al's (2015) five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was used. The 34 items in the economic well-being questionnaire were adapted from Bigot et al., 2017; Haver et al., 2015; Kinderman et al., 2011; and Radzyk, 2014. It was scored on a 5-point Likert scale, with 1 indicating complete dissatisfaction and 5 indicating perfect satisfaction.

Results and Discussion

Demographic Profile of the Respondents

Majority of the coconut growers (73.5%) were male. In terms of the ethnicity, most of them were Sinhala (92.5%), followed by Muslim (4.2%), and Tamil (3.3%). Religion wise, Buddhist (73.7%), Catholic (18.7%), Islam (4.3%), and Hinduism (3.3%) were recorded. Majority of the

growers were in the age group of 60-69 (26.0%), followed by the age groups 50-59 (23.5%), and 41-49 (23.0%) respectively.

Hypotheses Testing

The direct model analysis of PLS-SEM was followed to analyze the direct relationships (Table 1). The technology adoption ($\beta=0.483$), followed by financial behavior ($\beta=0.375$), financial knowledge ($\beta=0.144$) were found as significant positive antecedents of growers' economic well-being, and 87.9% of variance was clarified by them. The impact of financial behavior ($\beta=0.544$) was higher on growers' technology adoption than financial knowledge ($\beta=0.403$), and explained the 76.8% variance of technology adoption. Hence, H₁, H₂, H₃, H₄, and H₅ hypotheses could be accepted.

Table 1

Path coefficients for Direct Associations

Hypothesis	Relationship	Std. Beta	Std. Error	t-value	Result
H ₁	FK ->TA	0.403	0.035	11.556*	Supported
H ₂	FB -> TA	0.544	0.035	15.372*	Supported
H ₃	FK ->EWB	0.144	0.027	5.282*	Supported
H ₄	FB -> EWB	0.375	0.033	11.486*	Supported
H ₅	TA -> EWB	0.483	0.040	12.152*	Supported

Significant at * $p<0.001$, FK- Financial Knowledge, FB- Financial behavior, TA- Technology Adoption, EWB- Economic Well-Being

Then, the mediation test of bootstrapping was performed to reveal the mediation effect of technology adoption between the relationships financial knowledge, financial behavior, and economic well-being. Table 2 shows the results of the mediation test, and both the mediated pathways were significant. Thus, H₆ and H₇ were accepted.

Table 2

Path Coefficients for Mediation Effects

Hypothesis	Relationship	Std. Beta	Std. Error	t-value	Result
H ₆	FK -> TA -> EWB	0.195	0.024	8.191*	Supported
H ₇	FB -> TA -> EWB	0.263	0.028	9.378*	Supported

Significant at * $p<0.001$, FK- Financial Knowledge, FB- Financial behavior, TA- Technology Adoption, EWB- Economic Well-Being

According to Atkinson and Messy (2012), better financial decisions are taken by the Individuals when their financial knowledge is higher. Lee et al (2020) also revealed a link between financial knowledge and well-being. Zulfiqar and Bilal (2016) also discovered a strong positive association between financial knowledge and women's well-being. Therefore, H₁ is in line with the previous literature. Chikezie and Sabri (2017) found a link between financial behavior and financial well-being among Malaysian university students. Furthermore, the positive correlation between financial behavior and economic well-being was confirmed by Wijekoon et al (2021a), and the results are in line with the H₂. The H₅ is consistent with Wu et al's (2010) study, which indicated that rice technology adoption had a considerable influence on the well-being of Chinese paddy growers. As a result, it is evidenced that the adoption of

new technology will increase coconut yield, and improve the economic well-being of coconut growers.

Moreover, both the enhanced financial knowledge and good financial behaviors are major factors which play a vital role in agricultural technology adoption. For example, Teye and Quarshie (2021) found a positive relationship between Ghanaian rice growers' financial knowledge and technology adoption, and rural household economic well-being. McDonald et al. (2015) revealed a positive association between Ireland dairy farmers' positive financial behaviours and dairy technology adoption which resulted in higher economic well-being levels. Therefore, mediation effect of technology adoption between financial knowledge, financial behaviour, and economic well-being was confirmed.

According to the best of knowledge of the researchers, this is the one of the few studies that examine agricultural technology adoption as a mediator on the association between financial factors and economic well-being. As a result, the current study provides theoretical and practical contributions to the context of economic well-being. Moreover, these findings offer valuable guidelines for policymakers to make policy decisions to improve economic well-being through poverty alleviation measures (Wijekoon et al., 2021c).

Conclusion and Implications

All seven evaluated hypotheses were empirically supported, and in line with the past studies. Hence, financial knowledge, financial behavior, and technology adoption positively influenced the economic well-being levels, and clarified 87.9% of the variance of economic well-being. Furthermore, the relationships between financial knowledge, financial behavior, and economic well-being were mediated by the variable technology adoption.

Acknowledgments

"The authors acknowledge the financial assistance given by the Sri Lanka Council of Agricultural Research Policy (SLCARP Capacity Building Program 2018-2022), and Sri Lanka Coconut Research Institute for the resources given for the data collection".

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