International Journal of Multidisciplinary Comprehensive Research

Applying the Theory of Planned Behaviour (TPB) in Village Chicken Farmers' Commercialisation Intention – Evidence from North Western Zambia

Moffat Chawala [1], Bruce Mwiya [2*], Juvenalis Tembo [3], Gillian Kabwe [4], Matthew Banda [5], Lipepa Nyambe [6], Edwin Kasanda [7], Justice Bwalya [8], Progress Choongo [9], Mukwemba Mangangu [10]
[1-10] School of Graduate Studies, Copperbelt University, Kitwe, Zambia

* Corresponding Author: **Bruce Mwiya**

Article Info

ISSN (online): 2583-5289
Volume: 02
Issue: 04
July-August 2023
Received: 04-07-2023;
Accepted: 26-07-2023
Page No: 89-97

Abstract
Purpose: This paper contributes to the smallholder agriculture commercialisation literature by applying the Theory of Planned Behaviour in a developing country context. The study examines the Influence of Attitude, Subjective norms and Perceived behavioural control on the Commercialisation scaling-up Intent among smallholder village chicken farmers in North-western Zambia. Furthermore, the mediating role of commercialisation practices Intention is examined.
Design/methodology/approach: Based on a quantitative correlational design, primary sample data were collected using a structured questionnaire from 556 village chicken smallholder farmers from two farming blocks in North-western Zambia. The data were analysed using statistical correlation and regression models.
Findings: The findings indicate that attitudes, subjective norms, perceived behavioural control as well as commercialisation practices Intention have unique positive significant effects on Commercialisation practices intention (CPI). Further, CPI in turn positively Influences Commercialisation scaling-up intention (CSI).
Research limitations/implications: Notwithstanding the research limitations such as the study being cross-sectional and based on one district in Zambia, the findings have important implications.
For policymakers and enterprise support institutions, understanding the socio-psychological factors of smallholder farmers are important before introducing any interventions to promote the commercialisation of the village chicken. Additionally, for scaling-up to occur, farmers need to be encouraged to adopt commercialisation practices in management, investment and marketing. This would increase the chances of transitioning from subsistence to commercial farming.
Originality: The study is among the first to apply the theory of planned behaviour in the village chicken value chain in the under-researched Zambian context.

DOI: https://doi.org/10.54660/IJMCR.2023.2.4.89-97

Keywords: Commercialisation, Village chicken, Commercialisation practices, Intention

1. Introduction

It is well-documented in the literature that a majority of indigenous chicken farmers in Sub-Saharan Africa are mostly subsistence and very few have transitioned to rear indigenous chickens at the commercial level despite the potential presented by the indigenous chickens (Bwalya and Kalinda, 2014; Maumburudze *et al.*, 2016; Siyaya and Masuku, 2013) [8, 21, 29]. There is also evidence which shows that a majority of the farmers (over 80%) in rural Africa keep indigenous chickens (Guèye, 2000; Queenan *et al.*, 2016; Riise *et al.*, 2005) [11, 25, 26]. In Zambia, it is estimated that 84.4% of rural households keep village chickens (IAPRI, 2015). It is also evident in the literature that there has been a growing demand for village chicken and the demand remains unsatisfied (Bwalya and Kalinda, 2014; Queenan *et al.*, 2016) [8, 25]. The increased demand presents an opportunity for the rural

farmers to generate income for themselves and therefore the need for them to transition from subsistence rearing to commercial rearing of the indigenous chickens.

The attractiveness of the proposition for farmers to make the transition is because consumers do not only prefer indigenous chickens but are also willing to pay a premium price for them (Bwalya and Kalinda, 2014; Queenan *et al.*, 2016) [8, 25]. Additionally, rearing indigenous chickens is not a seasonal business and farmers can rear them all year round and thereby provide a continuous flow of income unlike if they were just to depend on seasonal crops.

While a lot of studies have examined the technical aspects of improving the productivity or marketing of indigenous chicken (Hailemichael *et al.*, 2016, 2017; Queenan *et al.*, 2016; Tadelle and Ogle, 2001) [12, 25, 30], very few if any have explored how commercialisation behaviour can be developed among indigenous chicken farmers. Yaseen *et al.*, (2018) [32] observed that research has not to date been nuanced around understanding how farmers can adopt business approaches in their farming operations.

It is evident that little research has been undertaken on the socio-psychological behaviour of farmers concerning the adoption of commercialisation behaviour for indigenous chickens. This study adopts the Theory of Planned Behaviour to understand smallholder indigenous chicken farmers' intentions to commercialise. The use of psychological models in farmer decision-making is widely supported and this is evident from St. John *et al.*, (2010) [16] who stated that;

> *"Economic models have been applied to human decision-making for many years; however, humans are not financially rational beings and other characteristics of the decision maker (including attitude) and the pressure that people perceive to behave in a certain way (subjective norms) may influence decision making; these are characteristics considered by social psychologists interested in human decision making."*

The motivation of this study is therefore to use a social-psychological approach to understand the levels of commercialisation intention among the smallholder farmers of village chicken in the Solwezi district of North-western Zambia.

This study has been organised into six sections. Section two of the study reviews the literature on the relevant study concepts as well as the development of hypotheses. The third section discusses the methods that were employed in the study. In the fourth section, analyses are carried out while section five discusses the results. Lastly, section six highlights the contribution of the study to the body of knowledge and the practical Implications for diverse stakeholders.

2. Literature Review and Hypotheses Development

This section will review the literature on agricultural commercialisation, business development services as well as the Theory of Planned Behaviour (TPB). Additionally, the hypotheses and a conceptual model will be developed.

2.1. Agricultural Commercialisation and Commercialisation Behaviour

Agriculture commercialisation has without doubt taken centre stage and recognition in the smallholder agriculture and rural development discourse (Maumburudze *et al.*, 2016) [21]. There are various definitions and perspectives of what agricultural commercialisation is really about. Leavy *et al.*, (2007) [18] argued that a lack of clarity about what agriculture commercialisations mean may give rise to misconceptions and evoke fears that may obstruct the passage of policy into practice. Some view commercialisation as managing or exploiting resources in a way to make a profit (Maumburudze *et al.*, 2016) [21]. Rukuni *et al.*, (2006) [27] define commercialization as a transition from mostly subsistence agriculture (based on production for own consumption) to production for the market, i.e. both local and export markets. Others argue that commercialisation extends beyond the profit motive and this was observed by Pingali and Rosegrant, (1995) [24]:

> *"Agricultural commercialization means more than the marketing of agricultural output; it means the product choice and input use decisions are based on the principles of profit maximisation. Commercial reorientation of agriculture occurs for the primary staple cereals as well as for the so-called high-value cash crops. On the input side, commercialization implies that both traded and non-traded inputs are valued in terms of their market value."*

The view of just restricting commercialisation by just focusing on producing for the market is narrow. It is therefore important to embrace a broader view of commercialisation which entails not only focusing on the marketing of agricultural output but also on product choice, input decisions and profit maximisation. This is the view that farmers of indigenous chickens and policymakers alike must embrace and it is a view that has been adopted in the study.

Having defined commercialisation, it is important to unpack what entails commercialisation behaviour. Farmers are likely to exhibit different behaviours based on the production systems that they are pursuing or perspectives. Table 1 below shows the different production systems and their respective behaviours.

Table 1: Characteristics of food production systems with increasing commercialisation

Level of Market Orientation	Farmer's objective	Sources of inputs	Product mix sources	Income Sources
Subsistence systems	Food self-sufficiency	Household generated (non-traded)	Wide range	Predominantly Agricultural
Semi-commercial systems	Surplus generation	Mix of traded and non traded inputs	Moderately specialised	Agricultural and non-agricultural
Commercial systems	Profit maximisation	Predominantly traded inputs	Highly specialised	Predominantly non-agricultural

***Source*:** Reproduced from Pingali and Rosegrant, (1995) [24]

The majority of the village chicken farmers in Zambia will fall into the subsistence system as the farmers' primary objective is food sufficiency, the inputs are usually household generated (non-traded), have a wider product mix and the income sources are predominantly agricultural. confirmed this subsistence status by stating that a majority of the rural households in Zambia keep flocks of indigenous chickens with little input (Bwalya and Kalinda, 2014) [8]. Siegel, (2008) [28] noted that the greatest constraint for agricultural commercialisation in Zambia is that there is a lack of a business-oriented approach among the smallholder farmers and that most smallholders view agriculture as a way of life and not as a business.

The need for the smallholder farmers of village chicken to transition from subsistence to semi-commercial and eventually to commercial systems is inevitable because of the huge potential presented by the village chicken. Maumburudze *et al.*, (2016) [21] posit that enhancing the production and productivity of indigenous chickens can accelerate the development of the rural social economy as indigenous chickens are a viable income earner. Having a semi-commercial or commercial orientation, therefore, means that the farmer must be able to practice some of the suggestions put forward by Pingali and Rosegrant, (1995) [24] as depicted in Table 1.

2.2. Theory of Planned Behaviour and Farmer Commercialisation Behaviour

The theory of planned behaviour (TPB) was proposed by Ajzen, (1991) [1] and is an extension of the theory of reasoned action. This theory postulates that the best predictor of behaviour is intention and intention is influenced by three antecedents namely, Attitude towards behaviour, Subjective norms and Perceived behavioural control. The appropriateness of this theory in studies regarding farmer decision-making has been recommended by several scholars. The use of the TPB has been extensive in several studies involving farmers' behaviour e.g., (Augusto *et al.*, 2014; Beedell and Rehman, 2000; St. John *et al.*, 2010; Wang *et al.*, 2018) [16, 4, 6, 22]. Augusto *et al.*, (2014) [4] acknowledged that the theory of planned behaviour is a pertinent theory to use in the analysis of farmers' decision-making and behaviour. Thus, the use of TPB in studying indigenous chicken farmer commercialisation behaviour is appropriate.

The TPB model consists of three independent latent constructs namely attitudes, subjective norms and perceived behavioural control. Hattam (2006) [14] posits that the TPB states that to sufficiently predict behaviour, the combined role of attitude, social pressures and the perceived difficulty in executing the behaviour is important. The different conceptualisations of the various components of the TPB model as defined by Ajzen, (1991) [1] are reflected below:

Attitude - attitude toward the behaviour refers to the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question. If an individual perceives that the performance of a certain behaviour is likely to lead to an unfavourable outcome, likely, they will not perform that behaviour.

Social Norms – refers to the perceived social pressure to perform or not to perform the behaviour. The pressure of what the important others (such as friends, family and fellow farmers etc.) think about adopting the innovation or practice has a bearing on adopting or not adopting the innovation. The role of important others in the non-adoption of a particular innovation could be because an innovation may be against a cultural norm or has a negative externality to neighbours. For example, most village chickens are grown using the free extensive system where the chickens are left to scavenge for food without control and this might lead to the destruction of garden crops belonging to a farmer's neighbour. Growing village chickens on a commercial basis using the extensive system might cause misunderstandings in the neighbourhood and the neighbours can advocate against this practice because the village chickens may be destroying their crops in the gardens.

Perceived Behavioural Control (PBC) – perceived behavioural control refers to people's perception of the ease or difficulty of performing the behaviour of interest. Ajzen, (1991) [1] further clarifies that perceived behavioural control is dependent on competencies, resources and opportunities (e.g. time, money, skills, and support) available to a person to achieve a certain behavioural undertaking. Furthermore, PBC is assumed to reflect experiences as well as anticipated impediments and obstacles that an individual is likely to face when performing a certain behaviour (Ajzen, 1991) [1].

Behavioural Intentions – the perceived likelihood of performing the behaviour. Ajzen, (1991) [1] further elaborates that intentions are indications of how hard people are willing to try, of how much effort they are planning to exert, to perform the behaviour. It follows therefore that the stronger the intention to engage in a behaviour, the higher the likelihood that it will be performed. In our suggested model, behavioural intentions are represented by the commercialisation scaling-up intention as depicted in Figure 1.

Commercialisation Practices Intention

In addition to the conceptual model proposed by Ajzen, (1991) [1] is the commercialisation practices intention construct. In order for village chicken farmers to commercialise, there are certain commercialisation practices that they need to adopt. Commercialisation practices intention, therefore, considers the perceived likelihood that farmers are willing to adopt commercialisation practices for them to transition from subsistence to commercial farming. The practices that farmers adopt or do not adopt have an implication in terms of the productivity and marketing of village chickens at the commercial level. For example, Maumburudze *et al.*, (2016) [21] observed that farmers need to strengthen animal husbandry practices to reduce mortality and enhance productivity and that commercialisation can be promoted by feed supplementation and medicines.

The commercialisation practices intention construct in our model is a composite of three practices namely:

1. Management practices intent – Refers to the intention to adopt practices to do with feeding, health and housing of the village chickens. A failure to embrace management practices is a recipe for low village chicken productivity and therefore hampers any commercialisation prospects. Zewdu *et al.*, (2013) [33] indicate that poor management practices on feeding, housing and disease control of village chicken represent one of the constraints to increased productivity.
2. Investment practices intent – refers to the intention to adopt practices to do with investing resources and time in the village chicken venture for production and marketing purposes. A common description in the

literature that characterises village chicken production is that it is a low input-low output system Some of the areas where it is essential to invest include feeding, housing, health and marketing of village chickens. Alders and Pym, (2009) [2] noted that the conditions for a successful commercial sector in poor countries are missing and these include the ability to purchase quality feed, vaccines, drugs and equipment. In their study, Hailemichael *et al.*, (2017) [13] in an attempt to signify the importance of investment, posited that the lack of use of external or purchased inputs is another barrier that limits village poultry production. The point noted above is in line with Pingali and Rosegrant, (1995) [24] who characterise or emphasise the need to use traded input for commercially oriented farmers.

3. Marketing practices intent – intention to adopt practices such as sales record keeping, proactively searching for customers, use of collective marketing techniques and use of weighing scale. Poor marketing management practice was identified as one of the constraints of village poultry production by Mapiye and Sibanda, (2005) [19]. It has also been noted that well-organized marketing of indigenous chickens is difficult due to the small flock sizes reared by farmers (Chandraschka 1998).

In summing up the theory of planned behaviour, Hattam, (2006) [14] posits that the more positive the attitude, subjective norm and perceived behavioural control, the greater the likelihood an individual has of intending to carry out the behaviour when the opportunity arises. Based on this summary, we, therefore, hypothesize the following relationships:

H1 - There is a positive relationship between subjective norms and commercialisation practices intention.
H2 - Attitude towards commercialisation positively influences the commercialisation practices intention.
H3 - There is a positive relationship between perceived behavioural control and commercialisation practices intention.
H4 - Commercialisation practices intent positively influences scaling-up intention.

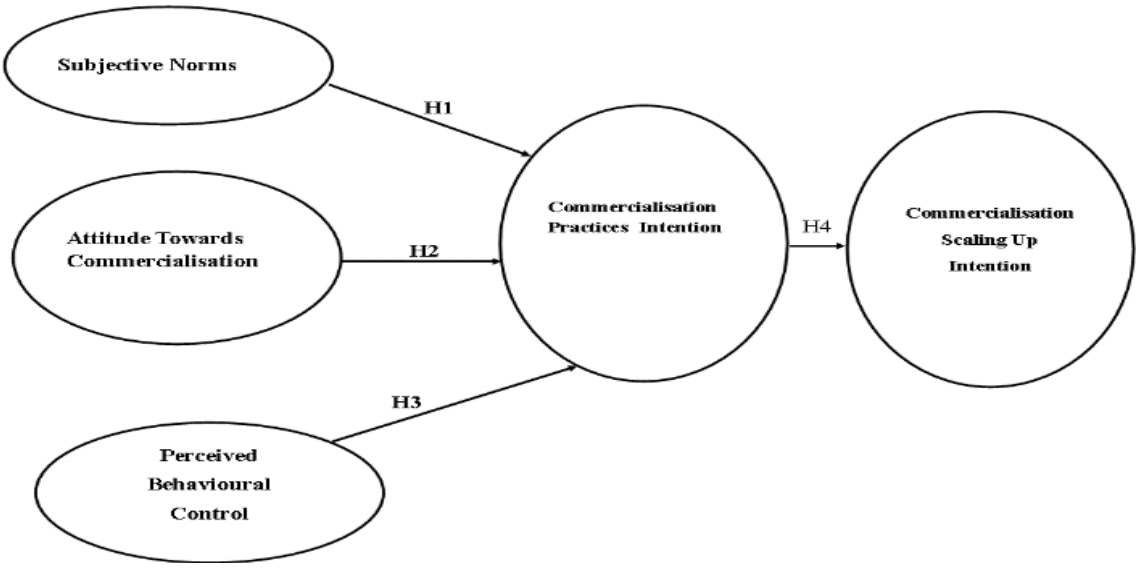

Fig 1

3. Methods

This section of the study outlines the methods that have been employed in the study.

3.1. Study Area

The study was conducted in the Solwezi district of North Western Zambia. Solwezi district was selected because it is the new mining hub in Zambia which is situated in a province that is referred to as the "new Copperbelt" because of the booming mining activities. Two farming blocks namely St Francis farming block and Mutanda farming block were selected from the district as study sites. Each farming block is made up of camps and each camp is made of farming zones.

3.2. Study Design

A quantitative cross-sectional design was employed in the study.

Sampling

A multi-stage stratified sampling technique was employed. In the first stage, clusters of 20 village chicken farmers were purposively identified using the agricultural extension staff as there were no official registers that captured the names of farmers engaged in village chicken production. Queenan *et al.*, (2016) [25] observed the non-existence of official records for the village chicken in Zambia as follows;

> *"In Zambia, no national livestock census has been conducted for almost 20 years. Estimates from the National Livestock Epidemiology and Information Centre (NALEIC) either do not include poultry at all, or do not disaggregate figures into poultry groups, or chicken types (i.e. indigenous or commercial)."*

Further Krishnan and Peterburs, (2017) [17], observed that for the poultry sub-sector, there are no comprehensive or validated lists of individuals (farmers or labourers in agriculture/agribusiness) across the country.
Before collecting the data, 20 indigenous chicken farmers were selected from each farming zone in the two farming blocks to take part in the study. A total of 960 village chicken farmers were supposed to register and take part in the study

in 48 zones but only 912 farmers from 46 zones registered. Out of the 912 targeted households, only 556 respondents showed up during the scheduled days for the interviews.

Data Collection

A total of 556 questionnaire surveys were completed by farmers coming from 46 farming zones of two farming blocks (Mutanda farming block and St Francis farming block) between 25th June 2019 and 15th July 2019. Data was collected using Survey CTO collect. In recruiting enumerators, only those who understand the local language (Ki Kaonde) were recruited and trained before the data was collected. Furthermore, the instrument was translated into Ki Kaonde to ensure consistency and reduce the chances of losing meaning. The questionnaire was piloted before administering it among village chicken farmers in another zone that was not part of the study to ensure that the respondents understood what was being asked.

Data Analysis

SPSS version 25 was used to analyse the data as well as the process add-on developed by Andrew F Hayes in mediation analysis.

Reliability Test

A reliability test was conducted to assess the internal consistency of the items in the instrument as per Table 3. The questions in the instrument were adapted as there is currently no study (based on our knowledge) that has explored commercialisation intention and behaviour in the village chicken value chain. All Cronbach's Alpha values were above the minimum threshold of 0.70 (Pallant, 2016) [23] in Table 3 in the appendix.

4. Results

Table 2 - Farmer Profile Information

The sample profile shows that a total of 556 farmers responded comprising 286 females and 270 males. The majority (66%) of the farmers were above the age of 40 which shows that farming among the young age group is not a famous occupation. The education profile of the farmers indicates that a majority of the farmers fall in the category of primary education or no education at all (62.6%). Those that attained Junior secondary school were only 24.3% while those who attended secondary school were 12.4%. Those that attended tertiary education were a paltry 1%.

In terms of marital status, a majority (80%) of the respondents were married while only 20% are unmarried. In terms of household type, 82% were male-headed while only 18% were female-headed.

Table 2: Respondent profile

Variable	Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Gender	Female	286	51.4	51.4	51.4
	Male	270	48.6	48.6	100
Age Groups	30 and Below	63	11.3	11.3	11.3
	31 to 40	126	22.7	22.7	34
	41 to 50	157	28.2	28.2	62.2
	51 to 60	112	20.1	20.1	82.4
	61 to 90	98	17.6	17.6	100
Education Level	None	46	8.3	8.3	8.3
	Primary	302	54.3	54.3	62.6
	Junior Secondary	135	24.3	24.3	86.9
	Senior Secondary	69	12.4	12.4	99.3
	College	4	0.7	0.7	100
Marital Status	Not married	111	20	20	20
	Married	445	80	80	100
Household Type	Female headed	101	18.2	18.2	18.2
	Male headed	455	81.8	81.8	100
	Total	556	100	100	

Correlation Analysis

A correlation analysis was conducted to determine the strength as well as the direction of the relationships among all the variables. The results of the correlation analysis are depicted in Table 3 (see correlations matrix in Appendix 8.2) and it shows the correlations, means and standard deviations of the dependent variable (commercialization scaling-up intention), independent variables (subjective norms, attitude towards commercialization, perceived behavioural control), proposed mediator (commercialization practices intention) and control variables (age group, marital status, education level, household type and gender). The results in Table 4 show low to medium correlations among the independent variables and this confirms that multicollinearity is not a problem as it only exists when r=.9 and above (Pallant, 2016) [23].

The correlations for the control variables show that all the control variables are positively correlated with commercialisation practices intention but only gender and education level are statistically significant. This is in line with the human capital theory that a higher level of education entails a higher capacity to perform in any field. In terms of gender, prior studies indicate that males are more like to engage in entrepreneurship than females, so the results are consistent with prior research.

In terms of the independent variables, Table 4 shows that the commercialisation practices intention of the farmers is positively significantly correlated (all sig. ≤ 0.01) with each antecedent i.e., subjective norms ($r = 0.276$), attitude towards commercialization ($r = 0.631$) and perceived behavioural control ($r = 0.652$). These effect sizes are generally large with only subjective norms that is small based on Cohen's criteria i.e. small = 0.10 to 0.29, medium .30 to 0.49 and large = 0.50 to 1.00 (Cohen, 1988) [10]. In contrast, the correlation

coefficients between independent variables (subject norms r=0.226, attitudes r=0.418 and perceived behavioural control r=0.449) and scaling up intention, while positively significant, are generally lower ranging from small to medium effect size. Given the lower attitudinal antecedents' correlations with scaling-up intention, individuals are more likely to first engage in commercialisation practices before intending to scale up. No wonder, correlations between scaling up intention and commercialisation practices intention (r=0.729) as well as the components of the latter (management r=0.714, investments r=0.613 and marketing r=670) reflect large effect sizes consistently.

Multiple Regression

Given the behaviour of correlations earlier, multiple regression analyses were conducted to predict the dependent variable (commercialisation practices intention). The predicting variables in the model were three (attitude towards commercialisation, subjective norms and perceived behavioural control). As can be seen from Table 5 (see appendix 8.3), preliminary checks were undertaken and multicollinearity is not a problem as the Variance Inflation Factor (VIF) for all the control and predictor variables were all below 10 as per the recommended norm (Pallant, 2016) [23].

In the standard multiple regression, the influence of control variables, subjective norms, attitude towards commercialisation, and perceived behavioural control leads to a significant combined effect (R-squared adjusted= 50.6%) with R = 0.716 representing a combined large effect size. Individually, all independent variables perceived behavioural control (Beta=0.428), attitude towards commercialisation (Beta=0.378), and subjective norms (Beta=0.075) make a statistically significant contribution in that increasing order of effect (Baron and Kenny, 1986; Mwiya *et al.*, 2018) [5, 22]. The overall model is significant with an F score of 72.101 and df (8, 547).

Table 6 – Summary of Hypothesis Testing

A summary of the results testing the different study hypotheses is captured in Table 6 (see Appendix 8.4). The summary shows that all four hypothesised relationships have been supported.

5. Discussion

It is evident from the study findings that subjective norms, attitudes towards commercialisation and perceived behavioural control each significantly influence the commercialisation practices intent of the village chicken farmers. This therefore leads to the conclusion that the proposed conceptual model has been supported which hypothesizes that each of the antecedents of commercialisation intention significantly influences commercialisation practices intention which in turn influences commercialisation scaling up intention. Firstly, subjective norms do significantly influence commercialisation practices intention positively with a correlation coefficient of 0.276. It should be noted, however, that the relationship between subjective norms and commercialisation practices intention is the weakest among the antecedents and this finding is consistent with other results in the extant literature (Armitage and Conner, 2001) [3].

Secondly, as can be seen from Table 6, H2 which states that attitude towards commercialisation positively influences commercialisation practices intention is fully supported. This conclusion is in line with the conceptual model (figure 1). This finding is consistent with prior studies linking attitude with intention (Martínez-García *et al.*, 2013) [20] in Mexico, (Augusto *et al.*, 2014) [4] in Brazil and (Bruijnis, 2012) [7] in the Netherlands.

Thirdly, hypothesis 3 suggested that there is a positive relationship between perceived behavioural control and intention to engage in commercialisation practices that enhance village chicken commercialisation. This hypothesis is also supported by the conceptual model and results in Table 3. These results are consistent with prior studies in the literature undertaken in Brazil (Augusto *et al.*, 2014) [4]. Scholars Augusto *et al.*, (2014) [4] posited that the higher the perceived capability to adopt a practice, the greater the intention of farmers to use this practice.

Hypothesis 4 which indicates that commercialisation practices intention positively influences commercialisation scaling up intention has also been supported. The overall 50.6% of variability explained in commercialisation practices intention (CPI) is significant as a majority of studies where the TPB has been applied have only explained about 39% of the variance in intention (Armitage and Conner, 2001) [3].

6. Contributions and Practical Implications

Contributions

While the literature is replete with the application of the theory of planned behaviour in various areas of agriculture such as conservation, dairy, natural grassland adoption, agriculture technology adoption etc., few or no studies have used this model to study village chicken farmer-related decisions. This study is therefore among the first if not the first to apply this model in village chicken commercialisation.

Practical Implications

The biggest contributors in predicting the commercialisation practices intention model were the attitude towards commercialisation and perceived behavioural control. It is therefore important for policymakers and development agencies to pay particular attention to the attitudes that the farmers have and the perceived behavioural control when any interventions promoting village chicken commercialisation are introduced. The implication is that if farmers' attitude towards village chicken commercialisation is unfavourable, the likelihood that they will develop any intention to pursue commercialisation is reduced. Furthermore, if the farmers perceive that they do not have the skills and also do not have control over factors that could facilitate or inhibit the commercialisation of the village chicken, this reduces the likelihood of engaging in village chicken commercialisation. The second implication of this study for policymakers and development agencies is that the mediating role of commercialisation practices intention should not be ignored. It is cardinal to promote the adoption of commercialisation practices among the village chicken farmers as a prerequisite to actualising commercialisation behaviour. The village chicken value chain has largely remained a low-input low output system because of failure on the part of farmers to embrace commercialisation practices such as good management practices, good investment practices and good marketing practices.

7. Acknowledgements

• Value Chain Innovation Platforms for Food Security ACIAR

• CGIAR research program on Forests Trees and Agroforestry

8. Appendix

Table 3: Internal Consistency test for the instrument

Variable		Items	Cronbach's Alpha
Factor 1	Scaling up Intention	2	0.896
Factor 2	Investment Intention	5	0.887
Factor 3	Management Practices Intention	6	0.831
Factor 4	Marketing Practices Intention	8	0.876
Factor 5	Attitude towards Commercialisation	4	0.975
Factor 6	Subjective Norms towards Commercialisation	6	0.903
Factor 7	Perceived Behavioural Control towards Commercialisation	5	0.793
Factor 8	Commercialisation Practices Intention	19	0.940

Table 4: Correlations Matrix

#	Variable	Mean	Std. De	N	1	2	3	4	5	6	7	8	9	10	11	12
1	Scaling Up Intent	4.527	0.744	556	-											
2	Commercialisation Practices Intent	4.163	0.684	556	.729**	-										
3	Management Practices Intent	4.258	0.681	556	.714**	.902**	-									
4	Investment Practices Intent	4.111	0.838	556	.613**	.887**	.723**	-								
5	Marketing Practices Intent	4.123	0.744	556	.670**	.939**	.774**	.735**	-							
6	Gender	0.490	0.500	556	.132**	.185**	.136**	.183**	.181**	-						
7	Age Groups	3.100	1.257	556	-0.023	0.023	0.038	0.019	0.012	0.080	0.000					
8	Education Level	1.430	0.839	556	0.065	.107*	0.081	.110**	.099*	.318**	-.163**	-				
9	Marital Status	0.800	0.400	556	0.042	0.053	0.032	0.071	0.043	.368**	-0.017	.111**	-			
10	Household Type	0.820	0.386	556	0.077	0.077	0.061	0.081	0.069	.420**	-0.055	.169**	.838**	-		
11	Subjective Norms	3.773	1.038	556	.226**	.276**	.190**	.284**	.272**	0.027	0.038	-0.016	0.051	0.040	-	
12	Commercialisation Attitude	4.271	0.715	556	.418**	.631**	.536**	.638**	.559**	.097*	0.005	.121**	0.046	0.048	.441**	-
13	Perceived Behavioural Control	3.953	0.775	556	.449**	.652**	.556**	.619**	.605**	.128**	0.016	.131**	0.059	0.059	.426**	.650**

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Table 5: Multiple Regression

Dependent Variable : Commercialisation Practices Intent

Variable	Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Sig.	VIF
	B		**Beta**			
(Constant)	1.275	0.157		8.143	0.000	
Gender	0.147	0.046	0.108	3.173	0.002	1.295
Age Group	0.000	0.002	-0.005	-0.163	0.871	1.100
Education Level	-0.005	0.007	-0.025	-0.754	0.451	1.219
Marital Status	0.006	0.033	0.010	0.177	0.859	3.243
Household type	0.001	0.022	0.003	0.062	0.950	3.146
Subjective Norms	0.050	0.022	0.075	2.208	0.028	1.306
Commercialisation Attitude	0.362	0.039	0.378	9.351	0.000	1.839
Perceived Behavioural Control	0.378	0.036	0.428	10.572	0.000	1.845
F (df1=8, df2=547)= 72.101* **	**R**	**0.716**	**R squared**	**0.513**	**R squared adjusted**	**0.506**

Table 6: Hypothesis Testing Summary

Number	Hypotheses	Test	Statistic	Result
H1	There is a positive relationship between subjective norms and commercialisation practices intention	Regression	Beta=0.075, P=0.028	Supported
H2	Attitude towards commercialisation positively influences the commercialisation practices intention	Regression	Beta=0.378, P=0.0005	Supported
H3	There is a positive relationship between perceived behavioural control and commercialisation practices intention	Regression	Beta=0.428, p=0.0005	Supported
H4	Commercialisation practices intent positively influences Scaling-up intention	Correlation	R=0.729, p<0.01	Supported

9. References

1. Ajzen I. The Theory of planned behaviour, Organizational Behavior and Human Decision Processes, San Diego. 1991; 50(2):179-211.
2. Alders RG, Pym RAE. Village poultry: Still important to millions, eight thousand years after domestication, World's Poultry Science Journal. 2009; 65(2):181-190.
3. Armitage CJ, Conner M. Efficacy of the Theory of Planned Behaviour : A Meta-Analytic Review E Y cacy of the Theory of Planned Behaviour : A meta-analytic review. 2001; 40:471-499.
4. Augusto J, Borges R, Oude AGJM, Marques C, Lutke V. Understanding farmers intention to adopt ___ grassland using the theory of planned behaviour. 2014; 169:163-174.
5. Baron RM, Kenny DA. The Moderator-Mediator Variable Distinction in Social Psychological Research. Conceptual, Strategic, and Statistical Considerations, Journal of Personality and Social Psychology. 1986; 51(6):1173-1182.
6. Beedell J, Rehman T. Using social-psychology models to understand farmers' conservation behaviour: The relationship of verbal and overt verbal responses to attitude objects. Journal of Rural Studies. 2000; 16:117-127.
7. Bruijnis M. Foot Disorders in Dairy Cattle, 2012.
8. Bwalya R, Kalinda T. An Analysis of the Value Chain for Indigenous Chickens in Zambia's Lusaka and Central Provinces, Journal of Agricultural Studies. 2014; 2(2):32.
9. Chawala M, Mwiya B, Tembo J, Kabwe G. Examining gender differences in indigenous chicken commercialisation intent–evidence from North-Western Zambia. Cogent Business & Management. 2022; 9(1):2007745.
10. Cohen JW. Statistical Power Analysis for the Behavioral Sciences, 2nd ed., Lawrence Erlbaum Associates, Hillsdale, NJ. 1988.
11. Guèye EF. The role of family poultry in poverty alleviation, food security and the promotion of gender equality in rural Africa Women and family poultry production in rural, Outlook on Agriculture. 2000; 29(2):129-136.
12. Hailemichael A, Gebremedhin B, Gizaw S, Tegegne A. Analysis of village poultry value chain in Ethiopia : Implications for action research and development, 2016, 578.
13. Hailemichael A, Gebremedhin B, Tegegne A. Status and drivers of village poultry production and its efficiency in Ethiopia, NJAS - Wageningen Journal of Life Sciences. 2017; 83:30-38.
14. Hattam C. Adopting Organic Agriculture : An Investigation Using the Theory of Planned Behaviour, International Association of Agricultural Economics Conference, 2006, 16.
15. IAPRI. Rural Agricultural Livelihoods Survey: 2015 Survey Report, 2015.
16. St. John FAV, Edwards-Jones G, Jones JPG. Conservation and human behaviour: Lessons from social psychology, Wildlife Research. 2010; 37(8):658-667.
17. Krishnan SB, Peterburs T. Jobs in Value Chains - Zambia, World Bank Jobs Series Issue No. 6. Opportunities in Agribusiness, 2017, 6.
18. Leavy J, Poulton C, Poulton C. Commercialisations In Agriculture, Ethiopian Journal of Economics, Ethiopian Economic Association (EEA). 1997-2007, 16(1):1-37.
19. Mapiye C, Sibanda S. Constraints and opportunities of village chicken production systems in the smallholder sector of Rushinga district of Zimbabwe, Livestock Research for Rural Development. 2005; 17(1).
20. Martínez-García CG, Dorward P, Rehman T. Factors influencing adoption of improved grassland management by small-scale dairy farmers in central Mexico and the implications for future research on smallholder adoption in developing countries, Livestock Science. 2013; 152(2-3):228-238.
21. Maumburudze D, Mutambara J, Mugabe P, Manyumwa H. Prospects for commercialization of indigenous chickens in Makoni District, Zimbabwe, Livestock Research for Rural Development. 2016; 28(4):1-13.
22. Mwiya BMK, Wang Y, Kaulungombe B, Kayekesi M, Wang Y. Exploring entrepreneurial intention ' s mediating role in the relationship between self-efficacy and nascent behaviour Evidence from Zambia, Africa, 2018. Available at: https://doi.org/10.1108/JSBED-03-2017-0083.
23. Pallant J. SPSS Survival Manual - A Step by Step Guide to Data Analysis Using IBM SPSS, 6th ed., Open University Press, New York, 2016.
24. Pingali PL, Rosegrant MW. Agricultural commercialization and diversification: processes and policies, Food Policy, Elsevier. 1995; 20(3):171-185.
25. Queenan K, Alders R, Maulaga W, Lumbwe H, Rukambile E, Zulu E, Bagnol B, *et al.* An appraisal of the indigenous chicken market in Tanzania and Zambia. Are the markets ready for improved outputs from village production systems?, Livestock Research for Rural Development. 2016; 28(10).
26. Riise JC, Kryger KN, Seeberg DS, Chistensen PF. Impact of smallholder poultry production in Bangladesh – 12 years experience with Danida supported livestock projects in Bangladesh. Copenhagen, Danida, Ministry

of Foreign Affairs, 2005.
27. Rukuni M, Tawonezvi P, Eicher C. Munyuki-Hungwe M, Matondi P. Zimbabwe's agricultural revolution revisited, University of Zimbabwe Publications, Harare, 2006, 119-140.
28. Siegel BP. Profile of Zambia's Smallholders : Where and Who are the Potential Beneficiaries of Agricultural Commercialization ? Africa Region Working Paper Series. 2008; 113:63.
29. Siyaya BJJ, Masuku MB. Factors Affecting Commercialisation of Indigenous Chickens in Swaziland, Journal of Agricultural Studies. 2013; 1(2):86.
30. Tadelle D, Ogle B. Village poultry production systems in the central highlands of Ethiopia. Tropical Animal Health and Production. 2001; 33(6):521-537.
31. Wang J, Chu M, Deng Y yuan, Lam H, Tang J. Determinants of pesticide application: an empirical analysis with theory of planned behaviour, China Agricultural Economic Review. 2018; 10(4):608-625.
32. Yaseen A, Bryceson K, Mungai AN. Commercialization behaviour in production agriculture: The overlooked role of market orientation, Journal of Agribusiness in Developing and Emerging Economies. 2018; 8(3):579-602.
33. Zewdu S, Kassa B, Agza B, Alemu F. Village chicken production systems in Metekel zone, Northwest Ethiopia, Wudpecker Journal of Agricultural Research. 2013; 2(9):256-262.