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Abstract

Several different actors are involved in making sure smallholder farmers are motivated to commit funds in expectation of future returns (investment decisions) from useful domesticated animals (livestock). However, efforts by the government, international organizations and the private sector have not been able to significantly increase trade trends in Tanzania's livestock which explains that there could be a lot more reasons for that. This manuscript assesses the socio-cultural factors (SCFs) influencing livestock investment decisions among smallholder farmers in Mbulu and Bariadi districts in Tanzania. A cross-sectional research design was employed where a sample of 333 respondents and 9 key informants were interviewed. Primary data were collected using a structured questionnaire and a key informant checklist. A binary logistic regression model (BLRM) was used to analyse the relationship between SCFs and livestock investment decisions. Results show that store of wealth is the most influencing factor followed by prestige, bride prices, ethnicity and number of children (significant at $p < 0.05$) to household livestock investment decisions. The study generally concludes that smallholder farmers consider their cultural perspectives before they decide on livestock management styles and that blending the SCFs and other factors could secure more livestock investments.

Keywords

Livestock investment decisions (LiDe), smallholder farmers, Tanzania

Introduction

Socio-cultural differences have been said to determine how people approach investment decisions differently depending on where they are from (Alter, 2013). In broad terms, socio-cultural environment

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consists of both the social system and the culture of people. It refers primarily to human created intangible elements which affect people's behaviour, relationship, perception and way of life, and their survival and existence (Adeleke et al., 2003). It consists of all elements such as beliefs, values, attitudes, habits, forms of behaviour and lifestyles of persons as developed from cultural, religious, educational and social conditioning (Anderson & Jack, 2002; Anderson, Lardy & Ilse, 2007; Porter, 2000), and influences which shape the personality of an individual and potentially affect his attitude, disposition, behaviour, decisions and activities (Casson & Giusta, 2007).

Smallholder farmers keep livestock for multiple purposes such as milk, meat, blood, skin and hides, and horns and as a source of income (Hurissa, 2003; Osterloh & Frey, 2003). Socio-cultural functions of livestock include their use as bride price and payment of fines in settling disputes in communal areas (Moyo et al., 2010). They are also reserved for special ceremonial gatherings such as marriage feasts, weddings, funerals, initiation and circumcision. Livestock are given as gifts to relatives and guests, and as starting capital for youth and newly married man. Livestock are used to strengthen relationships with in-laws and to maintain family contacts by entrusting them to other family members (Dovie, Shackleton & Witkowski, 2006).

Around the world, nearly one billion livestock are kept by more than 600 million smallholder farmers and herders in rural areas (FAO, 2015). Australia alone, for example, has 3 per cent of the world's cattle inventory, with India, Brazil and China taking the top three places (USDA, 2015). In Africa, on average, smallholder farmers keep 1.60 Tropical Livestock Units (TLUs), which is equivalent to about three indigenous beef cattle per household or about 0.6 TLU per household member. Livestock are a significant global asset with a value of at least US \$1.9 trillion (Steinfeld et al., 2015) generating about 1.4 per cent of the world's GDP (FAO, 2015). The livestock value employs at least 1.3 billion people globally (Thornton & Gerber, 2013). In Tanzania alone, there are about 21.3, 15.2 and 5.7 million heads of cattle, goats and sheep, respectively, while pigs are 1.6 million heads and around 43.7 million chickens (NBS, 2014). The 2012/13 National Panel survey revealed that 50 per cent of all households keep livestock (4.6 million households), 62 per cent of which are rural and 23 per cent urban, in total contributing 7.4 per cent of the GDP (URT, 2015).

Livestock Investment Status in Rural Tanzania

Livestock is one of the main economic activities on which Tanzania's rural population depends on for food and income (Green, 2014). It is also essential to ensure against vulnerability and risk related to climatic conditions against dependence on rain-fed agriculture (Moyo et al., 2010). Sale of livestock to purchase food especially in draught seasons or getting capital for small business undertaking has been a common practice by smallholder farmers (Upton, 2013). However, most smallholder farmers do not commit sufficient funds to the livestock enterprises. Production and processes are still dominated by traditional breeds and management systems making returns for Tanzania's livestock among the lowest in Sub-Saharan Africa (Kilama, 2013) suggesting farmers' limited investment in the sector (Devereux, 2014; Upton, 2013). As a result, several actors including the government, international organizations and the private sector are involved through policy formulation, research and livestock development programmes to motivate rural farmers to invest in livestock through modernization and commercialization initiatives (Adesina, 2011).

Among the efforts made by the Government of Tanzania towards livestock trade development include formulation of the 2006 Livestock Policy, having the 2009 and 2010 Livestock Sector Development Strategy (LSDS), Agricultural liberalization and *Kilimo Kwanza*. Studies (Delgado et al., 1999; Lofgren,

Sherman, & Moataz, 2002; Robbins & Coulter, 2007; Schwartz & Bilsky, 1990) indicated that livestock trade trends have not significantly increased while a number of years later same challenges and indication are still mentioned (Arndt, Jones, & Tarp, 2013; Atkinson & Lugo, 2010; Banda et al., 2012; Ciamarra, Tasciotti, Otte & Zezza, 2011; Devereux, 2014; Engida, Guthiga & Karugia, 2015; Green, 2014; Kessy, 2014; Mashindano, Kayunze, da Corta & Maro, 2011; Mkenda, Luvanda, & Ruhinduka, 2010). This suggests that there could be many other reasons that contribute to the situation generally. Empirical evidence shows that smallholder farmers' as part of their behavioural perceptions are very much referred to the values that may relate to their culture. In this case, socio-cultural factors (SCFs) may take significant effect to rural producers rather than economic, climatic and political incentives do per se (Green, 2014).

Socio-cultural drivers are having profound effects on livestock systems although it is often unclear how these drivers play out in relation to impacts on livestock investments especially in the rural communities as opposed to the urban areas where the cultural aspect is mixed (Phill, Ogilvie, & Morton, 2010). The social and cultural functions are often ignored when estimating their influence on livestock investment decisions (Ouma, Gideon & Steven, 2003). Since social and cultural functions are difficult to value in monetary terms, emphasis is mainly placed on the physical marketed livestock production (Alexander, 2006; Millar & Lipscombe, 2009).

Given these contexts, and that not much has been documented on how these SCFs influence livestock investment decisions in Tanzania, it was necessary to conduct a research to analyse the dynamics of rural livelihoods, understand the motives and investigate the relationship between SCFs and livestock investment decision. It requires an understanding of the nature of incentives that motivate people to act in certain ways from their cultural perspectives (Emery & Flora, 2006). Other factors such as economic, availability of markets and extension service, climate and political systems may influence livestock investment decisions (Duong et al., 2015), some of which are discussed in the subsequent manuscripts of this study.

To address the hypothesized issues with regard to SCFs affecting livestock investment decisions in Tanzania, this article is divided into seven sections. The first section introduces the background information and the Tanzania status on the research topic followed by the second section which reviews the SCFs for livestock investment decisions in the country. The third section presents the Theory of Planned Behaviour (TPB) which informs the study while the fourth section presents the methodology used. This section details the sampling procedures, data collection tools and methods as well as data analysis techniques. The fifth section presents the findings for the study and section six presents the theoretical implications of the findings. Lastly, the seventh section presents the conclusions and recommendations.

Review of Literature

Socio-cultural Factors for Livestock Investment Decisions

Socio-cultural factors are described to consist of everything that is not contained within the economy or political system (Felicia, George, Owoyemi & Adegboye, 2013; Wetherly, 2011) to include population features, age, gender, ethnicity, religion, values, attitude and lifestyles. These environmentally relevant patterns of behaviour lead to the creation of different cultural values in different societies, some of which influence decisions which bring their relevance for economic behaviour and business decisions (Wetherly & Otter, 2011).

In Latin America for example, livestock acts as a store of wealth which represents a form of capital that, unlike land, is uncomplicated by tenure security issues (Elizabeth et al., 2013). Livestock are also easy to liquidate and transport and can provide a steady stream of income through the sale of livestock products (Faris, 2011). Studies done in Latin America, Sweden, South Africa, Kenya and Ethiopia revealed that livestock are also culturally a very visible status symbol that is coveted and maintained even during periods of negative income flow (Heckandon, 1983; Heckandon & McKay, 2014; Jones, 2010).

Jamshidivavid, Chavoshani, and Amiri (2012) investigating the relationship of age and livestock investment decisions in Nepal found that the investment prejudices in individual investors has a relationship with age. In rural Africa, age is related to livestock ownership (Cocco, 2005). Accumulated investing wisdom helps aged people to make more efficient investment decisions. Theoretical models of portfolio choice (Campbell & Viceira, 2002; Gomes & Michaelides, 2005) also posit that the riskiness of investor portfolios would decline with age due to decreasing investment horizon and increasing risk aversion. The existing empirical evidence from the individual investor literature indicates that older investors exhibit a weaker disposition effect (Dhar & Zhu, 2006), hold less concentrated portfolios (Goetzmann & Kumar, 2008) and exhibit lower degree of over-confidence (Barber & Odean, 2001). Furthermore, these behavioural biases decline as investors learn and gain more experience (Feng & Seasholes, 2005; Goetzmann & Kumar, 2008).

Literature also shows that investment in livestock differs by gender. For example, Steinfeld et al. (2006) argue that differences exist between male and female farmers in livestock care, management, processing and marketing of livestock products. The greater the expertise and control a man or woman has over livestock, the greater his or her comparative advantage to make decisions regarding livestock management style (Smith, Jones & Ellis, 2014). It is also acknowledged that women's labour and responsibilities in animal production remain under-recognized and under appreciated by those designing and implementing livestock policies and plans (IFAD, 2004). Further, women and girls may or may not control, or be part of household decision-making processes, especially in relation to the disposal of animals and animal products (FAO, 2015; Hill, 2003).

While the degree of intergenerational wealth transmission (inheritance) and the degree of productivity among families in a given generation are entirely independent measures, the two are causally linked (Björklund & Jäntti, 2009; Bowles & Gintis, 2002). Transferring wealth in the form of livestock in Africa and most parts of the world has been part of culture (Borgerhoff et al., 2009) by making sure that herds are not lost for the future generations. As long as livestock is transmitted across generations, any difference in wealth holdings in a given generation manifests a difference in livestock management style with a view of traditional or profit making (Ahmed & Julian, 2012; Borgerhoff et al., 2000; Kanbur, 2001; Kaplan & Lancaster, 2003; Lee & Petersen, 2003; Mace, 2000).

Furthermore, Chukwuka, Okoli, Okeudo, Opara and Herbert (2010) in their study on reproductive potentials of West African dwarf sheep and goats found out that many people still believe that Africans keep livestock mainly for prestige and as status symbols or as a means of fostering cultural and social relations. Hamadou, Tou and Toé (2008) assert that most people believe that African livestock producers are highly subsistence oriented. Pastoralists and holders of large herds are prominent among those who practise specialized production accompanied by exchange (Moyo et al., 2012). Thus, they generate a high proportion of their cash income from livestock in order to purchase other food stuff for example grains (Devereux, 2014; Moyo et al., 2012). Even in production systems where livestock provide a smaller proportion of the total value of output as compared to the prestige that families have, the highest cash income may as well come from livestock.

Bride price, a transfer from the groom to the bride's family, is a traditional cultural practice prevalent in parts of Asia and throughout sub-Saharan Africa. Although it has received condemnation worldwide (Mujuzi, 2014; Wendo, 2004) as a repugnant and negative practice, leading to calls for its abolishment, still it has remained a reason substantially enough to affect the welfare of women and a society's distribution of wealth. Chojancki (2000) documents that in numerous historical instances, dowries to the other side as bequests have given way to groom price, that is, a direct transfer to grooms which point to a time of increased commercial activity and societal inequality, where groom prices emerged to secure husbands from prominent families which necessitate livestock productivity to carter for this cultural role (Anderson et al., 2001).

Perz (2000) put forward that while livestock ownership is the ultimate goal of most rural farmers, obtaining the capital needed to purchase the cattle and seed pasture tends to occur later in life. Livestock can be thought of as a family asset like land that could potentially impact fertility. It is hypothesized that the possession of cattle, for example, is a form of old age security that could negatively influence fertility by reducing the demand for children as labour or as a form of economic security (Higgins & Koch, 1997). Sufficient capital accumulation only occurs after the farmer has had living children grow to adulthood and provide remittances to parents, enabling those parents to shift to cattle production (Perz, 2000). Children, according to this cultural belief, are in demand by parents because they provide labour needed in earlier livestock production and remittances in later life that are necessary for the acquisition of cattle, a secure resource with important social status implications.

Ethnicity as a category of people who identify each other based on similarities such as common ancestral, language, social, cultural or national experiences have multiple dimensions of differences between groups of people (McCall, 2005). Among others, the kind of and the ways economic activities are carried differ. People's relations to livestock tied to ethnicity and property relations have been integral to shaping investment decisions (Bolt & Hillbom, 2013; Kalabamu, 2005). Cattle, for example, have been crucial in the construction of not only Tswana society but also Herero, Bakgalagadi and Afrikaner ethnicity, and historically they have been important in different ways for the Nharo and English native speakers of Ghanzi (Guenther, 2015). In this case, ethnicities intersect to create dispersion of values within the broader context of investment in livestock production.

Likewise, religion is one of the commonly mentioned determinants of the moral values that buttress moral principles. The major world religion teaches that an omniscient God observes human actions and holds people accountable for their actions (Emerson, 2010). Max Weber featured in Elizabeth et al. (2013) in his work 'The Protestant Ethic and the Spirit of Capitalism' identified the interconnection between religion and investment decisions. Weber proposed that a relationship exists between certain religious teachings and economic behaviour. In the Muslim communities for example, pig keeping for any reason is not common. Some traditionalists believe that keeping some kind of animals can be a bad luck to the family (Koch, 2003). The belief was that God desired profitability to prove stewardess and that a person who fulfils a calling does not waste time and resources (Koch, 2003). In similar vein, religion is an emotional attachment, a powerful emotive relationship to things and actions (Kirkpatrick, 2005).

Objective and Rationale for the Study

It can be argued that the SCFs are in many forms and context specific. There are many similarities and slight differences in some of the findings from these studies. These differences may be attributed in study designs and contexts in which the study was conducted. The reviewed studies seem to converge on the

notion that SCFs have an influence on livestock investment decisions. This study sought to establish that it is indeed a case in rural Tanzania because culturally, Tanzania is different from Latin America, Sweden, Nepal, South Africa, Canada, Kenya, Ethiopia and elsewhere. Taking into consideration that not much has been documented on how SCFs do influence livestock investment decisions in rural Tanzania, there was a need to investigate if SCFs significantly influence livestock investment decisions. This will further help to bring light to policy interventions, including the approaches that have been used to promote livestock production in the country which needs to be enhanced. From the reviewed studies, it is hypothesized that age, gender, number of children, inheritance of animal herds, prestige, store of wealth, bride price, ethnicity and religion significantly influence livestock investment decisions in the study area.

The Theory of Planned Behaviour (TPB)

As proposed by Ajzen (1991), the TPB describes that the intention to start an undertaking is influenced by different beliefs grouped in three categories. The first one is personal attitudes towards the enterprise-creation behaviour which refers to whether people have a positive or negative perception about this behaviour (Felicia et al., 2013; Tesfayohannes, 2012; Tundui, 2012; UDEC, 2002). The second is subjective norms which consist of the perceived social pressure to do business including parental role modelling, cultural obligations and opinions of important others. The third one is perceived control (self-efficacy or ability to perform the behaviour of interest). This implies that a high sense of self-efficacy will indicate a higher probability to take the decision to go into a business process (Adesina, 2011; Green, 2014; Upton, 2013). Generally, the theory gives emphasis on the role of intention (Katundu & Gabagambi, 2016; Sahinidis, Vassiliou, & Hyz, 2014) which is assumed to capture the motivational factors that influence behaviour. Intentions are indications of how hard people are willing to try, and how much of an effort they are planning to exert to perform the behaviour (Ajzen, 1991). Therefore, the intention of smallholder farmers in rural Tanzania to invest in livestock will be determined by a society or individual beliefs and attitudes towards livestock production. Nevertheless, other external factors such as policy, access to markets and information, climate and politics do influence livestock investment decisions (Green, 2014). In explaining the relationship between behaviour intentions and actual behaviour of an individual, TPB is relevant to livestock investment decisions because it remains open to exogenous factors that may play a role in the development of beliefs and attitudes (Fayolle, Gailly, & Lassarc-Clerc, 2006). Decision to invest is environmentally relevant patterns of behaviour which lead to the creation of different cultural values in different societies, some of which influence the decision to undertakings (Upton, 2013).

Methodology

The Study Area

The study involved smallholder farmers from two districts Bariadi and Mbulu of Tanzania in the year 2016. Mbulu District is in Manyara Region to the north-western part of Tanzania located at 3°48'–4°30'S, 35–36°E. It is bordered to the north by the Arusha Region and Lake Eyasi, to the east by the Babati rural district, to the south by the Hanang District, and to the west by Singida Region. According to the 2012

Tanzania National Census, the population of Mbulu District was 320,279 and the dominant ethnic groups being the Iraqw, Mbulu and Barabeig (URT, 2013). Bariadi District is in Simiyu Region to the north-east of Tanzania. The district is located between Latitudes 2°15' and 3°10' South of the Equator and Longitude 33°40' to 35° 10' East of Greenwich. The district is bordered by Kwimba and Magu Districts (Mwanza Region) in the west, Bunda and Serengeti Districts (Mara Region) in the north, Ngorongoro District (Arusha Region) in the east, Maswa and Meatu districts (Shinyanga Region) in the south. Bariadi had a population of 605,509 according to the 2012 National Census. Residents who are mainly the Sukuma known as Nyantuzu practice a nomadic pastoralist and agricultural economy (URT, 2015).

The two districts were selected for the study because these are among the districts with highest concentration of livestock (URT, 2013) and that smallholder farmers keep cattle, sheep, goats and other forms of livestock, which form an important part of their culture (Pica-Ciamarra et al., 2014). A cross-sectional research design was used for gathering information whereby an administered questionnaire and key informant interviews were applied in collecting data. In carrying out the cross-sectional study, a qualitative research survey was applied for the purpose of surveying opinions of the effects of SCFs on smallholder farmers in the study areas. A thematic analysis was done because qualitative surveys produce detailed data on the phenomena being investigated as they are derived directly from people involved or stakeholders (Patton, 2002, pp. 169–186).

The sample involved smallholder farmers who had been keeping livestock at least for the past 5 years. The sample size was 333 respondents, out of whom 174 were selected from Bariadi and 158 from Mbulu. The sample size was calculated by using the formula of Fisher et al. (1991) (Appendix 1) for population greater than 10,000. It was considered adequate at 95 per cent confidence interval, 5 per cent margin of error and 50 per cent skewness level. This sample size represents 86.7 per cent response rate, because the initial sample size was 384; unfortunately, 51 respondents were not reached due to the absence of the heads of households or the spouse during the visit for data collection. Furthermore, nine key informants were interviewed. In selecting the key informants, livestock ward extension officers were consulted to recommend people who are much more experienced in the area of livestock investment especially those who are known to sell animals to the livestock markets, meat, milk and oil but also people who are much more experienced in keeping animals in the traditional way. Information gathered through these interviews was used to triangulate the information obtained through the questionnaire. The interviews were done face to face and recorded in note books where every interview took about 50 minutes. From each district, only two wards with the highest number of livestock were picked (URT, 2015): Dongobesh and Aeda chini for Mbulu; and Dutwa and Igaganulwa for Bariadi.

Analysis

Data collected were entered in Statistical Package for Social Sciences (SPSS) computer software. Testing for external consistency of the instrument, a Cronbach alpha of 0.673 was obtained indicating an acceptable reliability measure of the tool. Context analysis approach was also used to understand respondents' views, interpret them and put in writing and then matched the explanations and observations with the literature. A reduced factor multivariate analysis was conducted to analyse factors effects quantitatively which allowed to categorize the SCFs. Then, a binary logistic regression model (BLRM) was used to analyse the relationship between SCFs and livestock investment decisions. In this case, nine independent variables mostly mentioned from the literature were used (age, sex, number of children, inheritance of animal herds, prestige, store of wealth, bride price, ethnicity and religion) while the dependent variable was the decision to invest in livestock (keeping animals for profit). Even though

Table 1. Explanatory Variables and the Hypotheses Included in the BLRM Analysis

Variable	Variables Definition and Unit of Measurement	Expected signs
Dependent Variable		
Keeping animals for profit (Y); (Profit making = 1, Traditional = 0)		
Independent variables (X's)		
AGE	Age of the respondent (number of years)	(+ve)
SEX	Sex of the respondent (1 = Male, 0 = Female)	(-ve)
NCH	Number of children in a household (Total number of children)	(+ve)
IHR	Inheritance of animal herds (1 = inherited, 0 = otherwise)	(+ve)
PRG	Prestige to animal ownership (1 = Yes; 0 = No)	(+ve)
STW	Animals kept to indicate wealth (1 = Yes; 0 = Otherwise)	(+ve)
BPR	Animals kept for bride price (1 = Yes; 0 = Otherwise)	(+ve)
ETN	Animals kept because of ethnic belonging (1 = Yes; 0 = Otherwise)	(-ve)
REG	Animals are kept because religion allows (1 = Yes, 0 = Otherwise)	(-ve)

Source: Prepared by the authors.

decision to invest in livestock can be measured using various indicators such as sales' revenues from animals and animal products, number of employees, gross sales turnover, herd size and veterinary costs (Kessy, 2009), in this study, the decision to invest in livestock was measured by the level of change of behaviour in managing livestock from traditional to profit making (the livestock management style).

The logistic regression model (LRM) is expressed in the equation below:

$$L_i = \ln \left\{ \frac{P_i}{1 - P_i} \right\} = \beta + \beta_{1\chi_1} + \beta_{2\chi_2} + \beta_{3\chi_3} + \beta_{4\chi_4} + \beta_{5\chi_5} + \beta_{6\chi_6} + \beta_{7\chi_7} + \beta_{8\chi_8} + \beta_{9\chi_9} + \epsilon_i \quad (1)$$

where; L_i = livestock investment decisions measured in change of livestock management behaviour from traditional to profit making; $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8, \beta_9$ = coefficients measuring the probability likelihood of livestock investment in a household; χ_1 = AGE, χ_2 = SEX, χ_3 = NCH, χ_4 = INR, χ_5 = PRG, χ_6 = STW, χ_7 = BPR, χ_8 = ETN, χ_9 = REG and ϵ is error term. Table 1 shows the definition of variables and the expected signs.

Findings and Discussion

Among the respondents, 12 per cent were females, while 88 per cent were males. Most respondents (86.2 per cent) were married while 13.8 per cent were single (including never married, divorced and widowed). This indicates that livestock management is normally a family business as it is involving and mostly men are in-charge. Even those who are not married are either single parents or staying with relatives as found by Pica-Ciamarra et al. (2014). It was further observed that household heads had an average year's age of 50.8 with 24 being minimum and 102 being maximum which indicate that livestock are owned by aged people. More so, the numbers of years spent at school for the smallholder farmers and their spouse is between 0 and 14 years which shows that most smallholder farmers either did not go through formal education or have primary, secondary or tertiary education. With regard to animal herds (in this case,

Table 2. Socio-demographic Characteristics of Respondents Related to Livestock Investment

Variables	Min	Max	Range	Medn	Mean	Mode	Std Dev.	Var.
Age	24	102	78	49	50.82	42	11.783	138.834
Education level	0	14	14	7	7.07	7	2.336	5.456
HH								
Education level of Spouse	0	12	12	7	6.62	7	2.661	7.079
Cattle	1	462	461	50	64.13	20	66.510	4423.634
Goats	2	500	498	22.5	47.13	10	62.011	3845.355
Sheep	1	280	279	20	30.27	10	33.735	1138.072

Source: Authors' own findings and calculations.

Note: HH = Head of Household, Min = Minimum, Max = Maximum, Medn = Median, Std Dev. = Standard Deviation, Var = Variance.

Table 3. General Results of the Estimated Binary Logistic Regression Model

Variables	B	SE	Wald	Df	Sig.	Exp(B)
Sex of respondents	-0.072	0.413	0.064	1	0.844	0.931
Age of respondents	-0.113	0.103	1.252	1	0.163	0.893
Number of children in a HH	1.004	0.290	4.925	1	0.007	2.729
Inheritance of animal herds	-0.371	0.334	1.434	1	0.314	0.690
Respondent's prestige	1.326	0.361	5.912	1	0.004	3.766
Store of wealth in livestock	2.001	0.344	29.103	1	0.000	7.396
Livestock for bride price	2.016	0.541	12.022	1	0.000	7.508
Ethnicity origin of respondent	1.022	0.451	5.120	1	0.005	2.778
Religion of respondents	-0.016	0.113	0.732	1	0.141	0.984
Constant	2.012	1.031	11.993	1	0.000	7.478

Source: Authors' own findings and calculations.

Note: Omnibus Test of Model Coefficient (chi-square = 78.021; sig. = 0.000); Cox & Snell R Square = 0.312; Hosmer and Lemeshow Test (chi-square = 8.775; sig. = 0.436); Nagelkerke R Square = 0.386; HH = Household.

animals of interest were cattle, sheep and goats), most families keep goats followed by cattle and sheep. Table 2 presents other socio-demographic characteristics of respondents in the study area.

Results from the regression analysis (Table 3) show that age and sex have negative influence on livestock investment decisions. However, inheritance of animal herds has shown more negative effects ($-0.371, p < 0.05$) compared to age and sex. This can be explained by the combination of different ethnic group and geographical location between Mbulu and Bariadi.

Store of wealth was the most influencing factor to livestock investment decisions. The findings were statistically significant at p -value < 0.05 and $\text{Exp}(B) = 7.396$. Furthermore, a Wald of 29.103 indicates that store of wealth is a strong predictor. The results also show that the probability of smallholder farmers to keep livestock for profit will increase by 34 per cent due to an incentive of storing wealth in livestock. Scholars like Cruz (2003) argue that rural communities evaluate the wealth of a chief, boss or a simple

man by the number of animals he has. Store of wealth was also justified by almost all interviewees who said that

To be sincere, most of us keep animals because in case of events such as sending children to school, sickness, food shortage, financing marriage, baptism, and graduation ceremonies we normally sale animals or animal products for example milk. In general, livestock finance whatever comes around which makes important that animals are kept productive.

This confirms that livestock serve as financial instruments by providing households with an alternative for storing wealth or accumulated capital and hence their social status by motivating and accelerating their decisions to keep animals for profit.

Likewise, in this study, bride price was the second influencing factor to livestock investment decision significant at p -value < 0.05 , and $\text{Exp}(B) = 7.508$. A Wald of 12.022 indicates that bride price is also a strong predictor. Moreover, results show that the probability of smallholder famers to keep livestock for profit will increase by almost 54 per cent due to the motivation of keeping the same for pride price. Scholars on African culture argues that bride price payment is very respected and defaulting men could lose status and respect from wives and the society because they were not able to pay bride price (Baluku et al., 2012; Thiara & Hague, 2012). Bride price is prevalent in most of Africa; more than 90 per cent of sub-Saharan societies traditionally make such marriage payments (Goody, 2003; Murdock, 2007) in the form of animals commonly cattle, goats and sheep. Results from this study suggest that rural communities in Tanzania have the same incentives to livestock production to meet this cultural obligation. This was also confirmed by all key informants who said 'Bride price is a must obligation that we make when male children want to marry. This necessitates families to keep and reproduce livestock so that enough herds are available to for pay pride price.' This is an indication that bride price is an influence to livestock investment.

Furthermore, prestige was found to be a third influencing factor on keeping livestock for profit statistically significant at p -value < 0.05 . At a Wald of 5.912 and $\text{Exp}(B) = 3.766$. Results indicate that when the motivation of prestige is related by keeping animals for profit by one unit, the likelihood of smallholder famers to invest in livestock increases by 0.36 times. Prestige is one of the reasons why many rural families in Africa keep animals for (Nori, Yomogida, & Morihiro, 2010). In sub-Saharan Africa for example cattle are primarily a measure of wealth and prestige, and large numbers are necessary for dowry payments. Among the Kuriya of Tanzania, who keep the Tarime cattle breed, pride price payments require between 7 and 40 heads of cattle (Ngowi et al., 2008). The majority of key informants (six of them) said that

it is prestigious for the families to have animal herds. A family with no cattle, sheep, goats and other types of animals, looks poorer and even head of the household cannot be considered to be a leader or to represent voice of the community. It is even difficult for the children from this kind of families to get husbands or wives from families that are wealthy in terms of livestock they own.

This explanation confirms a strong incentive for families to invest in livestock so that they gain a status in the society.

Contrary to expectations, it was observed that ethnicity has an influence on livestock investment decisions; this was statistically significant at p -value < 0.05 , at a Wald of 5.120 and $\text{Exp}(B) = 2.778$. Also results indicate that the likelihood of smallholder farmers to invest in livestock increases by 45

per cent when it is related to ethnicity. Researchers relating ethnicity and livestock production in Africa such as Ndang, Tazuh, Nji and Agwe (2011) and Pezo (2010) in Cameroon found out that Fulanis and Meta people earn their living almost exclusively from raising cattle, goats, sheep and horses in a free-ranging farming system in the Gutah Hills as compared to other ethnic groups in the country. Results from this study show that ethnic groups in the study area have the same motivation on livestock management style that is getting earnings from livestock hence profits. More than half (six) of the key informants also reported that 'Nyantuzu and Iraqw are much more oriented to profit making from livestock compared to others. These are the people who are always transporting and selling animals and animal products.' This testimony indicates that there are ethnic groups that are much more oriented to making profits from livestock.

Observation from the binary logistic regression also shows that children had a positive influence with decision to invest in livestock statistically significant at p -value < 0.05 . At a Wald = 4.925 and Exp (B) = 2.729. Results also suggest that when the number of children is related with the motivation of keeping animals for profit by one unit, the likelihood of smallholder famers to invest in livestock increases by 0.29 times. Moyo et al. (2010) put forward that in Timor for example, having a large number of male children in the family calls for the family to have a significant number of livestock for bride price. Most key informants (seven of them) also reported that

Having a large number of male children in the family calls to be prepared in terms of enough animals for bride price payments. To make sure that this is achieved; you need enough labour to take care of the herds. Girls do better this role than the boys in terms of cleaning the animal sheds, milking and taking care of the calves.

This means that it is not only the total number but also the type of children that motivates the family to invest in livestock.

Theoretical Implications of the Findings

In explaining the influence of SCFs, the TPB is relevant because it remains open to the influence of exogenous factors that may play a role in development of beliefs and attitudes. It explains the relationship between behavioural intentions and actual behaviour of an individual. According to the TPB, investment in livestock is both a function of external factors and internal psychological factors. The findings from this study are consistent with what was expected but also consistent with the theory used in this study (TPB) which says that antecedents of intention, namely a persons' attraction to the behaviour, subjective norms and PBC explains much of the variances in intentions, which in turn explains a significant amount of behavioural variance. This means that a smallholder farmer would engage in keeping animals for profit behaviour if his/her goals are favoured with the SCFs. The psychological factors and the external factors reported in this study are store of worthy, bride price, ethnicity, prestige and number of children of which their hypotheses were accepted. Age, sex, inheritance of animal herds and religion were found not to be influencing factors to livestock investment decisions and so, their hypotheses were rejected. The findings offer an important theoretical explanation that investment in livestock for the rural smallholder famers in Tanzania can be predicted based on SCFs (incentives). Due to this, it is important for the government to understand how to develop interventions on livestock productivity and policies necessary to utilize this important resource.

Conclusions and Recommendations

This study concludes that five SCFs have an influence in predicting livestock investment decisions in rural Tanzania on top of other factors such as economic, political and climatic conditions. These factors are: store of wealth, pride price, prestige, ethnicity and number of children. In this case, it is also fair to conclude that these factors partially explain why most households in the rural communities own at least few livestock herds as it is important to serve as safety net in fulfilling different obligations. It is also apparent to mention that most smallholder farmers still keep livestock in the traditional way as opposed to profit making. From these conclusions, several policy implications for livestock development stakeholders and policymakers can be put forward:

1. Since livestock serves as storage of wealth to rural communities and safety alternative in solving different problems that comes around, then interventions to alleviate the constraints facing smallholder farmers in managing livestock need to be enhanced. Improving market information access and flow as well as upgrading of physical infrastructure (i.e., road networks and livestock markets) and awareness on managing livestock profitably would potentially increase rates and consequently improve livestock investment.
2. Bride pride is an important cultural obligation to meet among communities in the study area and the rest of Africa. Stakeholders and policymakers have a chance to capitalize on this by assisting smallholder farmers on how livestock management decisions could be made. Hence, through this cultural aspect, enhancement of livestock investment decisions can be achieved in a broader context than just being a tradition.
3. It has been established that culture is learned, shared and an enduring orientation pattern in a society and that people demonstrate their culture through values, ideas, attitudes, behaviours and symbols inclusive being prestige. Therefore, it is apparent that this complex portrait of people can also influence investment decisions. Hence, it is this difference in culture that makes it vital for smallholder farmers to assess an undertaking they want to venture into and ultimately be successful. Assisting smallholder farmers to align prestige and livestock investment could bring much more productivity.
4. Ethnicity as another aspect of culture is deeply rooted into people as it gives them a sense of belonging and originality. From the findings of the study, this is another avenue that can be used to encourage more livestock investment decisions to rural communities even those that are not oriented to keeping livestock for profit. This requires some serious campaigns and showcasing the benefits from success stories and lessons learned from other ethnic groups that manages livestock profitably.
5. From the study, it can also be concluded that children are assets to rural families. Female and male children have their roles to play in livestock management styles. These should not be underestimated as grooming young people in a certain orientation (in this case livestock investment) have an impact to secure future investors. Formal training and mobilization of the youth to engage in livestock can have an impact that is sound and sustainable.

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Appendix I

Calculation of Sample Size

The sample size was 384 determined using the formula of Fisher, Mayland & Burns (1991) for population greater than 10,000

$$n = \frac{Z^2 pq}{d^2}$$

where

n —The desired sample size.

Z —The standard normal deviation, set at 1.96, which corresponds to 95 per cent confidence level.

p —Skewness level estimated at 50 per cent.

q — $1.0 - p$.

d —the degree of accuracy desired, here set at 0.05 corresponding to the 1.96.

$$\text{In substitution, } n = \frac{1.962 \times 0.5 \times (1 - 0.5)}{0.052} = 384$$