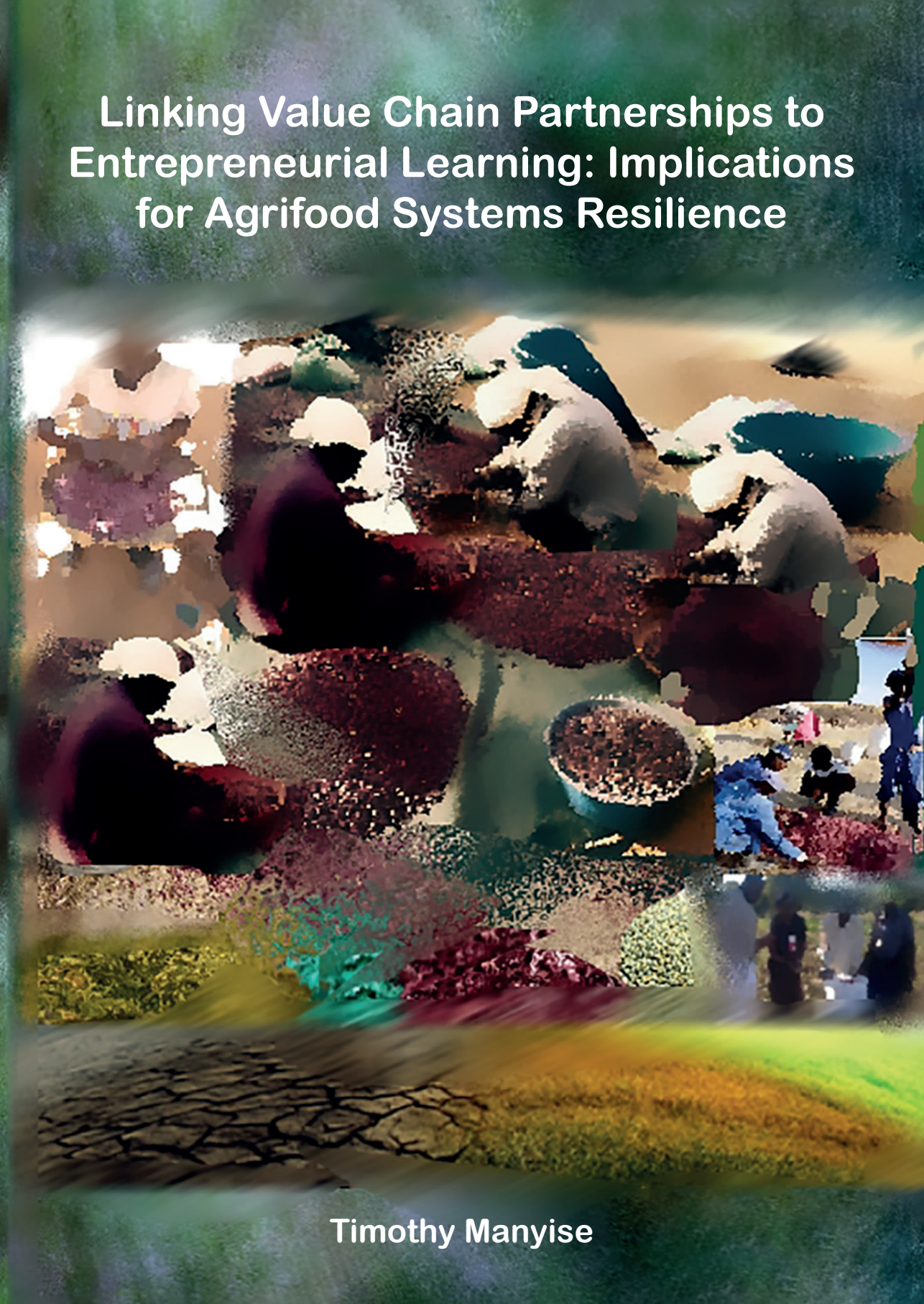
Linking Value Chain Partnerships to Entrepreneurial Learning: Implications for Agrifood Systems Resilience



Timothy Manyise

Propositions

1. Resilience of smallholder farmers is best achieved by the combination of causal and effectual behaviour of these farmers.
   (this thesis)

2. The sustainability of value chain partnerships is enhanced by governance mechanisms that promote balanced power relationships between smallholders and agribusinesses.
   (this thesis)

3. Export-oriented production in developing countries benefits resource-rich countries more than developing countries.

4. In a globalising economy, the view that migration does more harm than good for society is a myth.

5. Work-life balance is not something you find; it is something you create.

6. Graduate schools need to consider personal resilience as a requirement for enrolling into a PhD programme.

Propositions belonging to the thesis, entitled

Linking Value Chain Partnerships to Entrepreneurial Learning: Implications for Agri-food Systems Resilience

Timothy Manyise
Wageningen, 20 April 2022

Linking Value Chain Partnerships to Entrepreneurial Learning: Implications for Agrifood Systems Resilience

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Linking Value Chain Partnerships to Entrepreneurial Learning: Implications for Agrifood Systems Resilience

Timothy Manyise

Thesis

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in the presence of the
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Preface and Acknowledgements

Value chain partnerships involving smallholder farmers as part of the value creation process are increasingly common in low-income markets. As collaborative institutional arrangements, they are recognised for their potential to address socio-ecological challenges while remaining commercially viable. Depending on their structure, value chain partnerships have potential to effectively influence pathways towards resilient agrifood systems hence helping to address socio-ecological challenges of food insecurity, poverty, biodiversity loss and the effects of climate change. I am glad to provide a piece of work that allows us to understand how value chain partnerships, created by agribusiness companies in partnership with smallholder farmers and other support actors, influence outcomes of resilience in low-income markets through farmer entrepreneurship.

My personal motivation for pursing this PhD is to grow as an independent researcher and contribute to science. However, this dissertation would not have been possible without the advice, support and encouragement from many wonderful people. It is therefore my pleasure to express my gratitude to such amazing think-tanks, administrators, colleagues, family, friends and all research participants who availed themselves during this challenging journey.

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Chapter 1

General Introduction

1.1. Introduction

In today's turbulent and uncertain agrifood systems, the role of market-led approaches in enhancing resilience outcomes represents a topic of persistent and lively debate among policy makers, civil society and scientists (Rosenstock et al., 2020). Despite this growing debate, we still know little about how value chain partnerships support the transition towards resilient agrifood systems. This thesis investigates when and how value chain partnerships (VCPs), created by a private agribusiness company with smallholder farmers and other actors, may support or hamper farmer entrepreneurship. In addition, the thesis investigates how farmer entrepreneurship influences outcomes of agrifood systems resilience in low-income markets, using Zimbabwe as a relevant empirical setting. While VCPs have primarily the function of efficiently moving and transforming agrifood products from farm to fork, they also have an important learning mission: they have potential to shape partnering individuals' behaviours depending on how collaboration is structured (Bitzer et al., 2012; Dentoni et al., 2016; Salvini et al., 2018). Conceptually and empirically, this thesis addresses the question; when and how VCPs between one focal agribusiness company and various groups of smallholder farmers, along with other actors, influence smallholder farmers' entrepreneurial behaviours and outcomes of agrifood system resilience. The VCPs in the empirical studies are organised across four rural districts (Bikita, Zaka, Gutu and Masvingo) of Masvingo Province of Zimbabwe.

The first chapter of this thesis starts by introducing the current challenges in the global and local agrifood systems, with a special focus on Sub-Saharan Africa (SSA). In doing so, the chapter takes stock of existing studies and identifies the knowledge gaps, before specifying the overarching research objectives and specific questions of this thesis. This chapter then presents the theoretical framework, research methods and outline of this thesis.

1.2. Challenges in Agrifood Systems of Developing Countries and the Role of Value Chain Partnerships

1.2.1. Challenges in Local and Global Agrifood Systems

Global and local agrifood systems have been undergoing rapid structural changes driven by intertwined issues of population growth, poverty, food insecurity, climatic change, desertification and biodiversity loss. The world population is projected to reach 10 billion by 2050, which is almost double the population in 1990 (United Nations, 2019). Amidst this fast-growing population, many people, especially those in South Asia, Eastern Asia, Latin America

and Sub-Saharan Africa (SSA), are still living in extreme poverty and experiencing severe food insecurity (FAO, 2017; Searchinger et al., 2018). For example, about one in four people in SSA are estimated to be undernourished (Hall et al., 2017), and the region is home to a third of all chronically hungry people in the world (United Nations, 2015). At the same time, while smallholder farmers struggle to cope with and adapt to extreme temperature changes, droughts, floods and pests & diseases (UNCC, 2019), global agriculture was estimated to be directly responsible for 14% of total greenhouse gas emissions in the past 150 years, and deforestation – often caused by inefficient land-use decisions – currently accounts for an additional 18% of emissions (Olivier & Peters, 2020). As a reaction to these intertwined issues, policy makers, civil society and scientists agree that building resilience in agrifood systems – broadly speaking, the ability of agrifood system actors to predict, cope and recover from disruptions (Folke, 2006) – requires tackling these longstanding global challenges collectively and collaboratively among multiple stakeholders (UNDP, 2012; UNFCCC, 2016).

In particular, as leading actors in value chains in low-income markets, private agribusiness companies – broadly speaking, organisations ranging from farms trading their agricultural products to agrifood value chain actors either upstream (i.e., suppliers of seeds, fertilisers and other inputs) or downstream farming (i.e., trading, manufacturing and retailing firms) – often in cooperation with public and civil society stakeholders, have been experimenting with different institutional arrangements (Thiele et al., 2011; Danse et al., 2020; Dentoni et al., 2020). These institutional arrangements seek to address socio-ecological challenges, including food insecurity, poverty, biodiversity loss and climate change, while remaining commercially viable (Halme et al., 2012). They do so by including previously marginalised groups as part of the value creation process (Bitzer et al., 2012). Such collaborative initiatives have experienced proliferation in low-income markets, especially in cocoa, oranges, palm oil, coffee and legume agrifood value chains (Lahiff et al., 2012; Vuna, 2018).

In the agrifood systems of low-income markets, particularly in SSA, these institutional arrangements have often been referred to as value chain partnerships (VCPs) (Bitzer et al., 2012; Drost et al., 2012) and sometimes strategic alliances or partnerships (Lahiff et al., 2012; Bitzer & Bijman, 2014), depending on their focus and context. As the term suggests, VCP refers to long-term relationships among actors to produce, move, process and/or market goods or services, primarily with farmers (Trienekens, 2011). Such collaborative arrangements vary in scale, with some initiated by northern-based Multi-National Corporations (MNCs) and others by international operating NGOS, financial institutions or local governments (Bitzer, et al.,

2012). At a global scale, for example, the World Bank has been providing support to several VCPs in Latin America and Caribbean under the name 'Productive Alliance Approach' as a strategy of linking farmers to markets (World Bank, 2016). At a local scale, the government of South Africa, for example, is supporting VCPs between local private companies and emerging farmers as a strategy for improving the latter's market access and capacity-building in the context of land reform and black economic empowerment (Bitzer & Bijman, 2014). While value chain partnerships vary in scale and composition of stakeholders, their basic premise remains the same: to improve the livelihoods of previously disadvantaged groups. Considering the importance of agricultural activities to the livelihoods of millions of people living in rural areas (FAO, 2017), VCPs will play critical roles in reducing poverty, eliminating hunger and enhancing resilience in both local and global agrifood systems.

1.2.2. Value Chain Partnerships in Agrifood systems

Given the proliferation of VCPs as collaborative institutional arrangements with potential to address complex challenges in the local and global agrifood systems, several attempts have been made to understand their impact. A large body of literature celebrates VCPs for their role of facilitating market access for smallholder farmers (Bitzer et al., 2012; Wijk & Kwakkenbos, 2019) and increasing efficiency & competitiveness of food supply chains as agribusiness companies and their smallholder farmer partners can pool complementary resources, knowledge and capabilities (Kolk, 2013). The underlying assumption in this literature is that, by pooling complementary resources, members can achieve results which they could not have achieved when working individually (Bitzer et al., 2013; Kolk, 2014). However, scholars have also raised several issues against VCPs. Most of these issues relate to the variation in the set of rules, transactions and relationships governing the flow of resources and implementation of activities within a VCP – that is, their governance mechanisms. Some critics, for example, question the ability of VCPs to deal with socio-economic trade-offs as leading players; in particular, agribusiness companies may seek to grow their competitiveness and maximise efficiency at the expense of their social objectives (Crane et al., 2014). Along with this critic, others cite power imbalances (Bassett et al., 2018; Tobin et al., 2016) and exploitation of marginalised groups (Ponte, 2010; Likoko & Kini, 2017; German et al., 2018; Chamberlain & Anseeuw, 2019) as agribusiness companies seek to gain control of strategic resources.

Given their aspiration to address complex socio-ecological challenges, and the controversy that comes with the variety of governance mechanisms they take, VCPs became a relevant topic that

has gained traction in several scientific disciples. For instance, scholars in the agricultural sciences explored VCPs in relation to access & control of resources and their income benefits for smallholder farmers (Chamberlain & Anseeuw, 2017), economists have assessed VCPs impact on farmer's sustainable livelihoods (Ochieng et al., 2016; Bonnell & Veglio, 2011; Danse et al., 2020), the sustainability scholars studied VCPs in terms of the process that enable VCPs to generate sustainable solutions (Dentoni & Peterson, 2011; Bitzer et al., 2013; MacDonald et al., 2018), and innovation literature focused on how VCPs challenge and change the status quo of their members (Bitzer & Bijman, 2014). Collectively, despite controversy emanating from the governance mechanisms of VCPs, these studies acknowledge that VCPs have the potential to address complex socio-ecological challenges such as food insecurity, poverty and the effects of climate change. However, as we briefly discuss in the next section, existing literature offers little to understand when and how the governance mechanisms of VCPs influence outcomes of agrifood system resilience, which is important for achieving several sustainable development goals (FAO, 2017b). Given the societal relevance of VCPs and the shortcomings in literature, a study to understand how the governance mechanisms of VCPs influences agrifood system resilience is justified.

1.2.3. The Influence of Value Chain Partnerships on Farmer Entrepreneurship

Despite several attempts to understand structures of VCPs (Bitzer et al., 2009; Drost et al., 2012) and assessing their impact, though, it became clear that the role of collaborative institutional arrangements such as VCPs cannot be univocally assessed (Lund-Thomsen, 2009; Rein & Stott, 2009). This is because multiple dimensions and stakeholder perspectives of social, economic and ecological impacts of VCPs contradict each other (Drost et al., 2012; Wach, 2012; Rosenstock et al., 2020). Because of the inherent challenges of assessing the impact of VCPs in the agrifood system, what remains controversial is the role that governance mechanisms of VCPs play in supporting resilience in local agrifood systems. Specifically, when and how do the governance mechanisms of VCPs effectively support (in particular) marginalised actors in the system - e.g., smallholder farmers as resource-poor value chain actors – in terms of preparing for, coping with and recovering from socio-ecological shocks? The academic literature has often taken opposite stances on the role of value chain partnerships for resilience (Dentoni & Ross, 2013; Salvini et al., 2018; Rosenstock et al., 2020), ranging from enthusiastic proponents grounded in Positivist tradition to severe criticisms influenced by a Foucaultian view (Dorado & Ventresca, 2013; Crane et al., 2014), and stimulated a lively debate around corporate social responsibility (Hartmann, 2011; Scherer & Palazzo, 2011).

Nevertheless, this debate has rarely considered how the governance mechanisms of VCPs might shape smallholder farmer practices, competences and 'way of doing things,' which is needed to cope with and adapt to unexpected challenges in the agrifood system, a gap which this thesis intends to bridge.

A growing body of literature shows that entrepreneurial practices and competences are vital to cope with unexpected challenges (Williams et al., 2013; McInnis-Bowers et al., 2017) and sustain social, ecological and economic outcomes (Naminse & Zhuang, 2018; Wu & Si, 2018; Sutter et al., 2019). For example, the practices and competences of recombining resources innovatively allow individuals or groups to leverage on contingences brought about by disturbances and sustain their livelihoods (Gries & Naudé, 2010; Wilson & Martin, 2015; Parker & Ameen, 2018). Accordingly, many policy makers and practitioners currently seek to foster farmer entrepreneurship, i.e. the creative recombining of natural, financial, social and physical resources in and around farms to achieve benefits, reduce costs or mitigate risks (Dias et al., 2019), among smallholder farmers under the assumption that this may effectively support agrifood system resilience (Bullock et al., 2020). Accordingly, recent research also show that smallholders farmers can develop these capacities over time through experience (Ochago et al., 2021), interaction (Busch & Barkema, 2020) and knowledge-sharing (Sutter et al., 2014).

In light of the relevance of value chain partnerships and the potential of farmer entrepreneurship to support agrifood system resilience (Bitzer et al., 2012; Naminse & Zhuang, 2018; Rosenstock et al., 2020), a knowledge gap still persists in reflecting upon the link between the governance mechanisms of VCPs and farmer entrepreneurship, and what this implies for resilience in the local agrifood system. Specifically, how do the governance mechanisms of value chain partnerships effectively shape farmer entrepreneurship and support or hamper outcomes of agrifood system resilience. Along with this persistent knowledge gap, there are few if any studies that have assessed farmer entrepreneurship either at one point in time or as a process of change over time. This knowledge gap is persistent especially in situations where research seeks to understand the practices, competences and ways of doing things among individual smallholder farmers in low-income markets as those in SSA. Most of the studies on the assessment of entrepreneurial behaviour are largely from technologically advanced sectors (Mcelwee, 2016; Fitz-Koch et al., 2018) or higher income Western contexts that radically differ from SSA contexts (Cala et al., 2015), particularly in terms of resource constraints, uncertainty and formality of institutions (Webb et al., 2014). SSA contexts are often characterised by resource scarcity and environmental turbulence.

1.3. Research Objective and Research Questions

Against this background, on the influence of VCPs on outcomes of agrifood system resilience, the overarching objective of this research is to understand when and how VCPs can be organised to stimulate farmer entrepreneurship, in ways that support outcomes of agrifood system resilience in low-income markets. In relation to this overarching research objective, this thesis addresses the following central research question: When and how does the organisation of VCPs in low-income markets influences entrepreneurship of smallholder farmers in ways that support outcomes of agrifood system resilience? To address this central question, this thesis will conceptually and empirically answer the following four specific research questions:

1. How can value chain partnerships be organised to support smallholder farmer entrepreneurship in ways that support outcomes of agrifood system resilience?
2. What are the dimensions of smallholder farmers' entrepreneurial behaviour that are relevant to assess the influence of the governance mechanisms of VCPs on outcomes of agrifood system resilience?
3. How do the governance mechanisms of VCPs shape entrepreneurial behaviour and influence the outcomes of agrifood system resilience overtime?
4. How do governance mechanisms of VCPs combine with farmer characteristics to shape individual entrepreneurial behaviour?

1.4. Theoretical Framework of the Thesis

As explained in Section 1.2, VCPs refer to long-term relationships among actors that produce, move, process and/or market goods or services from farmers to consumers (Trienekens, 2011). In low-income markets, such collaborative institutional arrangements often involve smallholder farmers, women or other previously disadvantaged groups, either as suppliers of raw materials, entrepreneurs or distributors of products (Drost et al., 2012). Their primary goal is to provide market access for smallholder farmers and enhance the welfare of their marginalised members (Bitzer et al., 2012). However, it remains unclear when and how the *governance mechanisms of VCPs* (defined in Section 1.2 as the set of rules, transactions and relationships governing the flow of resources and activities) support or hinder outcomes of agrifood system resilience. This thesis assumes that governance mechanisms of VCPs have the potential to influence outcomes of agrifood system resilience through supporting farmer entrepreneurship.

However, the current literature on VCPs lacks a solid knowledge base that informs us how VCPs can hinder or support outcomes of agrifood system resilience through farmer entrepreneurship. Therefore, this thesis refers to other literature streams to find out how the probable relationships between VCPs, farmer entrepreneurship and outcomes of agrifood system resilience can be studied. Broadly, this thesis draws from organisational entrepreneurship (OE) perspective to investigate these relationships. OE seeks to explain how the governance mechanisms may stimulate or hamper the entrepreneurial behaviour of its members (Hjorth, 2004; Stieglitz & Foss, 2009). This perspective argues that the way people gain knowledge through interaction, training, experience and experimentation - either individually or in groups within an organisation – allows them to develop behaviours where one explores new ways or means to achieve goals and thus create value (Lans et al.,2008; Popova-Nowak & Cseh, 2015). The perspective gained managerial and societal relevance in recent years since it informs managers, leaders or change-agents how an organisation may be (re-)organised to stimulate creativity, innovation, adaptation and even transformation within and outside its boundaries (Amabile & Khaire, 2008).

Despite its potential of informing processes of adaptation and change, at today the OE perspective has not been applied to new forms of organisations in the context of agrifood systems (Bratnicki, 2005; Fitz-Koch et al., 2018). As an example of new forms of organisations, VCPs in low-income markets present a novel and societally relevant context to apply the OE perspective. Furthermore, while the perspective of OE is conceptually interesting and societally relevant, empirical challenges ought to be considered to meaningfully apply it to the agrifood system. To navigate these empirical challenges, this thesis uses the concepts of governance mechanisms, entrepreneurial learning (EL), entrepreneurial behaviour and resilience outcomes as avenues to investigate these relationships. The remaining of the theoretical framework explains these concepts and why they are crucial for addressing the identified research questions.

1.4.1. Governance Mechanisms of Value Chain Partnerships

To operationalise the concept of governance mechanisms, this thesis draws from New Institutional Economics (NIE) theory (Williamson, 1991; Ménard, 2004) and considers VCPs involving a private company and a group of farmers as a form of hybrid organisation, in between a market transaction and a firm. As hybrid organisations, VCPs seeks to create social and/or ecological value, while remaining commercially viable. While they may seek to facilitate

market access and improve welfare for smallholder farmers, VCPs strive to remain efficient and competitive in national or global value chains (Drost et al., 2012). According to NIE theory, hybrid organisations can be distinguished through their governance mechanisms, in particular resource and activity interdependence (Ménard, 2004; Foss et al., 2008). Considering the relevance of governance mechanisms to the OE perspective, this thesis focuses on *resource-pooling*, *distribution of decision-making rights*, and *formality of coordination mechanisms* as the three governance mechanisms of VCPs (Figure 1.1, left side). The rest of this thesis refers to these components as the governance mechanisms of VCPs that has the potential to shape farmer entrepreneurship.

In hybrid organisations, such as value chain partnerships, partners pool a bundle of complementary resources - either tangible (e.g., financial, human, social, physical or natural capital) or intangible (e.g., information, knowledge or reputation) - and organise a set of rights to access, control, use, shape and recombine them (Ménard, 2004). As recent research in the agrifood context suggests (Ménard, 2004; Slangen et al., 2008; Miralles et al., 2017), VCPs widely differ in their intensity in resource-pooling. Some partnerships pool and access a wide set of common resources, while others do so with a small set of resources. The intensity of resource-pooling in a value chain partnership may not be relevant without empirical examination of the distribution of decision-making rights over the pooled resources. Distribution of decision-making rights refers to the allocation of rights and rules regarding who holds authority to direct the deployment of resources and implementation of activities (Foss & Foss, 2001; Slangen et al., 2008; Albers et al., 2016). Not surprisingly, property rights theory suggests that ownership of resources strongly skew the distribution of decision-making rights (Slangen et al., 2008). In other words, ownership of a resource constitutes right to use it, alter it, exclude others from its use, appropriate its returns or transfer it (Foss & Foss, 2001).This means that decision rights do not only give access to pooled resources but also give voice and agency on the use of resources and implementation of activities to derive benefits (Grandori, 2013). Along with the intensity of pooled resources and the related distribution of decision-making rights, hybrid organisations vary in terms of how they coordinate and enforce decision-making rights over the use of pooled resources and implementation of activities. In other words, VCPs differ also depending on the formality of coordination mechanism which refers to the formal and/or informal processes through which decisions over the use of pooled resources and allocation of decision rights are implemented and enforced (Ménard, 2004). Some partnerships mostly organise the distribution of resource-pooling, decision-making and enforcement rights

through formal mechanisms (i.e., legal contracts, bylaws or other types of written sets of rules). Other partnerships, along with contracts, also use informal mechanisms (e.g., personal trust relationships, social capital) to govern the decision-making over the pooled resources (Lu et al., 2008).

Extant literature suggests that these three elements of governance structure may influence their members' learning. Through the shared execution of tasks and through accessing a common resource pool, VCPs develop a platform for the members knowledge and competence development (Inkpen & Tsang, 2007). Accordingly, this thesis assumes that these three governance mechanisms have the potential to stimulate entrepreneurial learning (EL) among smallholder farmers in the context of VCPs. The next section will explain what EL is and how this may explain the changes in behaviours among smallholder farmers, and how it will help address research questions RQ 1, 3 and 4.

1.4.2. Entrepreneurial Learning

This thesis uses the perspective of EL to explain how the governance mechanisms of VCPs may stimulate or hamper learning for their members (Janczak, 2008; Jiang et al., 2016). EL has been defined as the process through which experiences are transformed into new knowledge (Politis, 2005). The use of EL perspective to understand how individuals develop new competences and behaviours within and outside the organisation context has gained prominence in recent years (Corbett, 2005; Lans et al., 2008; Ochago et al., 2021). Building upon this perspective, this thesis explores the extent to which VCPs offer 'space' for EL among smallholder farmers. Accordingly, the thesis explores how the governance mechanisms of VCPs in terms of the intensity in resource-pooling, distribution of decision rights and coordination mechanism offer space for entrepreneurial learning. In addition, this thesis assesses whether a VCP that provides more space for EL among smallholder farmers may be able to promote higher levels of entrepreneurship and resilience outcomes than VCPs with limited space for EL. This thesis then explores how the governance mechanisms of VCPs combine with farmer background characteristics factors (e.g., gender, distance to market, farm size) to stimulate EL and shape farmer entrepreneurship.

To assess changes in farmer entrepreneurship as an outcome of entrepreneurial learning, this thesis suggests the measurement of entrepreneurial behaviours. The next section will explain what farmer entrepreneurial behaviour is and which behaviours are relevant for supporting

resilience among smallholder farmers and therefore help to address the second research question (RQ 2).

1.4.3. Farmer Entrepreneurial Behaviour

As defined in Section 1.2.3, farmer entrepreneurship refers to the process of effectively redeploying natural, financial, social and physical resources in and around farms to achieve benefits, reduce costs or mitigate risks (Dias et al., 2019). Given the empirical challenge of assessing farmer entrepreneurship, either at one point in time or looking at changes over time as an outcome of EL, this thesis suggests measuring entrepreneurial behaviours – defined as the observable actions in the process of gauging, combining and recombining resources in innovative ways to create value – be it social, economic and/or environmental (Gartner et al., 1992). In light of the importance of managing resource constraints and navigating uncertainty in the agrifood systems of developing countries, this study suggest the measurement of effectuation and causation behavioural logics as a suitable way of assessing farmers' entrepreneurial behaviours (Fisher, 2012) among smallholder farmers in contexts of resource limitations and high uncertainty (Figure 1, centre).

Generally speaking, behavioural logics refers to someone's 'ways of doing things' that reflect deeper, distinctive mindsets (Sarasvathy, 2001). Specifically, as effectuation theory has revealed (Sarasvathy, 2001; Sarasvathy, 2008), people may display an effectuation behavioural logic as they engage in non-predictive, emergent and adaptive behaviours. For example, farmers with an effectuation behavioural logic mostly rely on decision-making heuristics that focus on what they have, what they know and who they know – keeping mostly in mind what they can afford to lose in their recombination of resources (Dew et al., 2011). Conversely, a causation behavioural logic involves the envisioning of 'strict' goals that precedes and steers the mobilisation of the means to reach the established ends. For example, farmers with a causation logic may rely mostly on market and/or environmental predictions, strategic planning (e.g. business plans), market and competitive analysis, purposive resource acquisition and selection of activities based on their intended contribution towards strategic and formalised goals (Servantie & Rispal, 2018). Accordingly, the rest of this thesis will refer to smallholder farmer entrepreneurial behaviour in terms of effectuation and causation.

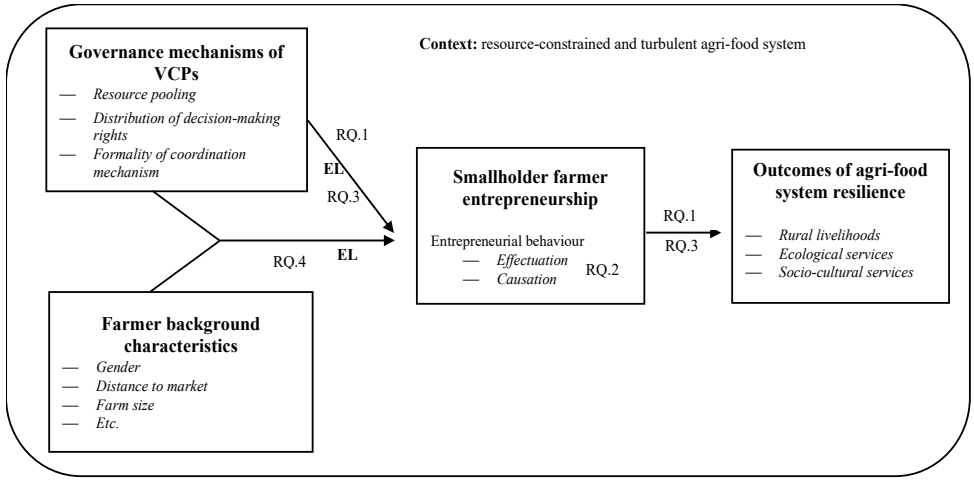
Existing literature, yet outside the context of VCPs and geographic regions far from SSA, suggests that individuals holding both entrepreneurial behaviours – that is, engaging in

behaviours that reflect effectual and causal 'ways of doing things' at the same time (Fisher, 2012) – predicts higher stability of firms' incomes (Smolka et al., 2018) and livelihoods (Shirokova et al., 2020). In line with this literature, this thesis assumes that understanding differences in causation and effectuation behaviours may help to understand why some farmers have better resilience outcomes that others. Said that, understanding the relationship between farmer entrepreneurial behaviours and resilience outcomes among smallholder farmers in the context of VCPs bridges a current knowledge gap in literature, which is how different levels of entrepreneurial behaviours that may explain the influence of VCPs have on different outcomes of agrifood system resilience (RQ 3). Accordingly, the next sub-section describes the concept of outcomes of agrifood system resilience.

1.4.4. Outcomes of Agrifood System Resilience

Broadly speaking, agrifood system resilience refers to the ability of agrifood system actors to predict, cope and recover from disruptions (Folke, 2006). This definition suggests that resilience is a complex concept since it assumes the presence of multiple systems nested and interrelated with each other in multiple ways. For example, the resilience of farmers and their household system may – at least partially – depend on the resilience of the environments surrounding them (Williams et al., 2019). At the same time, the resilience of multiple household or community sub-systems may corroborate the resilience of the overarching system that they are part of. Given the small scale, assessing resilience of smallholder farmers is practical and easier than the entire agrifood system they are embedded. Several recent studies proposed ways to operationalise resilience of farmers from different perspectives, including their adaptive capacity (Milestad & Darnhofer, 2003) and farmers' knowledge (Šūmane et al., 2018). However, none of these studies has focused on assessing resilience specifically in terms of smallholder farmers ability to reconfiguring the resources available at hand – a capability which is critical for them to cope with and adapt to unexpected shocks (Parker and Ameen 2018). Insofar, scholars argued that entrepreneurship can strengthen smallholder farmer resilience as it helps recombining resources in times of dramatic socio-ecological changes (Wilson & Martin, 2015; Gries & Naudé, 2010). In times of adversities, for example, smallholder farmers resort to different adaptive and coping means (Liu, 2019) to sustain their livelihoods, or they may adopt practices that contribute to the maintenance or recovery of ecological services (Makate et al., 2019a) and through their long-term investments, they provide socio-cultural services. Accordingly, this thesis suggests that farmer entrepreneurial behaviour supports the resilience of the agrifood system through three outcomes: valorisation of socio-cultural services,

conservation & restoration of ecological services and adapting & coping to sustain rural livelihoods (Figure 1.1, right side).



Legend: The arrows represent the key relationships within this thesis. The bold texts represent concepts of the theoretical framework of this thesis, and the dimensions of each concept are displayed in parenthesis within each box. EL refer to entrepreneurial learning and RQ indicates the research question in the theoretical framework

Figure 1.1: Theoretical framework of the thesis

To address the research questions and contribute to the overarching research objective, this thesis employs several methods. The next section explains these methods and justifying why they were considered fruitful for addressing the identified research questions.

1.5. Research Methods

This study employs a *theory synthesis approach*, *cross-section study* in the form of multivariate statistics, *multiple-case study* design in the form of inductive method and *configurational analysis* in the form of qualitative comparative analysis (QCA), to address the identified research questions.

1.5.1. Theory Synthesis Approach

In order to integrate the (so far) poorly connected literature strands on how value chain partnerships can be organised to support smallholder farmer entrepreneurship in ways that support outcomes of agrifood system resilience, this thesis uses a *theory synthesis approach.*

Undertaking a theory synthesis approach is fruitful when research on a given topic is fragmented across literature and when the research seeks to achieve conceptual integration (Cropanzano, 2016; Jaakkola, 2020). This approach involves selecting a set of articles that bridge, at least to some extent, the poorly connected strands of the literature. Three steps were followed to achieve an integrative framework: synthesis preparation, synthesis, and synthesis refining. In synthesis preparation, we first searched – across search engines *Google Scholar*, *Scopus* and *Web of Science* – for synonyms and dimensions (or features) of the three key concepts under study: value chain partnerships, farmer entrepreneurship and agrifood systems resilience.

Second the synthesis process, involved looking for points of convergence and divergence as well as bringing together points that converge. Drawing from the emerging theoretical insights, propositions were developed. This process of developing propositions required a constant reflection with extant literature. When the literature in the context of agrifood was too thin to advance a compelling proposition, the research team resorted to studies outside the agrifood contexts (i.e., linking broader forms of collective action, entrepreneurship and socio-ecological resilience). The result was a rough framework that suggest plausible linkages between the three concepts under study. Finally, the emerging framework was refined by interrogating literature for further insights (Jaakkola, 2020).

In the context of 'when and how the organisation of value chain partnership fosters smallholder farmer entrepreneurship in ways that support their resilience', a theory synthesis approach seemed particularly fruitful to bring a parsimonious and coherent framework (Jaakkola, 2020) linking the governance mechanisms of VCPs, farmer entrepreneurship and outcomes of agrifood system resilience.

1.5.2. Cross-section Study

In order to explore the dimensions of smallholder farmers' entrepreneurial behaviour that are relevant to assess the influence of VCPs on outcomes of agrifood system resilience, this thesis relies on a cross-section study grounded on quantitative data collected from 430 smallholder farmers using a survey questionnaire. Literature shows that a questionnaire is a particularly useful data collection tool where data related to perceptions, beliefs, experience and behaviour of individuals who are geographically widespread need to be collected. Empirical management and organisation studies by Lu et al. (2008), Chandler et al. (2011), Eyana et al. (2017) and

Kanten et al. (2015), among others suggest that a questionnaire is one of the most suitable tool to collect data on one's perception of individual entrepreneurial behaviour. The questionnaire was administered using trained enumerators under the supervision of the researcher. The collected data were captured and processed using SPSS ver. 25.

Accordingly, these data were then analysed using cluster analysis. Cluster analysis is a typology construction and classification technique developed for grouping observations; it groups cases together based on their similarities to each other with regards to certain observable variables (Hair et al., 2010). This technique has gained relevance in recent years, especially in emerging areas of entrepreneurship research such as taxonomic studies (Crum et al., 2020). This study employed a two-step cluster approach, which is a modified form of hierarchical clustering to identify entrepreneurial behaviours among smallholder farmers. This method involves a pre-clustering phase that first uses a distance measure to separate groups into many small sub-clusters before the actual clustering is performed by subsuming the sub-clusters in to larger clusters using agglomeration (Crum et al., 2020). In order to validate the constructs used for the cluster membership allocation, we performed an exploratory factor analysis (EFA), which is a multivariate statistical technique where observable variables are reduced to a few latent variables that have a common variance structure with the measured variables (Hair et al., 2014). In order to validate and determine the reliability of the cluster solution (Ketchen & Shook, 1996; Crum et al., 2020), following established procedures, we used analysis of variance (Welch's ANOVA) and Pearson's chi-squared test to examine statistical differences on input variables (Milligan, 1996; Borch et al., 1999; Korunka et al., 2003; Brusco et al., 2017).

1.5.3. Multiple-case Study for Theory Development

In order to explore how the governance mechanisms of value chain partnerships support or hamper farmer entrepreneurial behaviour and outcomes of agrifood system resilience, this thesis adopts a multiple-case study approach (Eisenhardt & Graebner, 2007). The multiple-case study is based on qualitative data stemming from 96 interviews with smallholder farmers, Zimbabwe Super Seeds (ZSS) private company staff and other actors within the VCPs, triangulated with direct observations and secondary data over a period of 16 months. Within a variety of qualitative approaches, this study predominantly seeks both patterns and processes of causality among observed variables. We opted for a cross-case comparison to explore several narrative contexts of experience across strategic alliances, each one serving as an experiment to support or reject the emerging relationships in the data (Yin, 2003; Eisenhardt & Graebner,

2007). Within the selected value chain, we iteratively selected seven from the eighteen active VCPs for an in-depth study on the basis of their likely contribution to fit with emerging theoretical categories (Eisenhardt & Graebner, 2007). Hence, we selected extreme cases to understand and explain contrasting patterns of the central constructs and relationships in the data (Herriott & Firestone, 1983; Eisenhardt & Graebner, 2007). Along this iterative process, we first chose VCPs based on our initial knowledge of the value they created for farmers in terms of farmer entrepreneurship. Afterwards, as we started noting differences in the first VCPs' governance mechanisms, we purposively selected the remaining VCPs also based on the emerging differences in their resource-pooling, decision-making processes and use of formal and informal coordination mechanisms.

Data analysis of this chapter involved two stages. First, a within-case analysis was conducted where relationships between changes in farmers' entrepreneurial behaviours over time were identified, as well as their consequences of these changes on their livelihoods. This involved a coding process where concepts were extracted, compared and modified as new data emerged. In doing so, recurrent themes emerging from interview narratives were highlighted and graphically represented. Accordingly, it was sought to avoid forcing data into preconceived and pre-existent categories (Glaser & Strauss, 1967). Second, with rough and emerging constructs and relationships, a cross-case analysis was conducted. To do so, similarities and differences among the cases were sought (Eisenhardt, 1989) to systematically compare and contrast constructs by moving from case data to theory (Glaser & Strauss, 1967). This iterative process involved the use of summary tables to explore emergent dimensions across cases (Eisenhardt & Graebner, 2007). As the framework became more refined, extant literature on entrepreneurial behaviours, VCPs' governance mechanisms and entrepreneurial learning were consulted. This was important to refine construct definitions, levels of abstraction and relationships and to sharpen our logical arguments. Consistent with the replication logic (Yin, 2014), the emerging framework was finally applied to the seven cases.

1.5.4. Comparative Qualitative Analysis

To explore how governance mechanisms of value chain partnerships interplay with farmer characteristics to shape individual farmer entrepreneurial behaviour, this thesis relies on survey data from 430 smallholder farmers operating in VCPs. The survey was conducted between December 2019 and February 2020 by trained enumerators under the supervision of the author of this thesis. The study uses Comparative Qualitative Analysis (QCA), a comparative case

method specifically designed to investigate complex causality (Ragin, 2014), to explore how governance mechanisms combine with other factors to influence changes in entrepreneurial behaviour. QCA was the most appropriate method for this study, as opposed to linear models, since it takes into consideration that different combinations of conditions can explain a particular outcome (Douglas et al., 2020). As a set theoretic approach, QCA uses Boolean algebra to treat cases as configurations of putative causal conditions and an outcome and by analysing whether a given condition stands in a subset or super set relationship to the outcome (Schneider & Wagemann, 2012). QCA is a difference-making method (Ragin, 1987); it investigates whether the presence or absence of a putative cause (e.g., experience) makes a difference for the presence or absence of the outcome of interest (e.g., learning outcomes). The method is premised on the concept of dimensional *conjunctural causation*, which assumes that 1) it is the combination of conditions that explain an outcome, 2) different configurations might *equifinally* lead to the same outcome and 3) that the effect of a condition depends on other conditions in the configuration. As such, this configurational perspective reveals fine-grained detail that is enough to disentangle the complexity of entrepreneurial learning among necessity-based entrepreneurs in the context of value chain partnerships.

Along with these research methods, it is important to describe the context in which this research takes place. The next section gives an overview of the context of SSA and Zimbabwe, highlighting the opportunities & challenges and why the study of VCPs in the agrifood systems is justified.

1.6. The Context of Sub-Saharan Africa and Zimbabwe

Agriculture is considered the mainstay of most countries in SSA. According to UNDP (2012), 70% of the population in SSA depends on agriculture as a source of livelihood and income. On average, agriculture contributes with about 30% of the GDP of most countries in SSA and 60% of employment (OECD & FAO, 2016). More importantly, agriculture is viewed as a regional platform for poverty alleviation, food security and rural transformation (African Union Commission, 2015). Like many other countries in SSA, Zimbabwe, a land-locked country in Southern Africa, is an agro-based country. Zimbabwe is bordered by South Africa, Botswana and the Caprivi strip of Namibia, Mozambique and Zambia, to the south, west, east and north, respectively. The country occupies a total land area of 390,757 km², of which 41.9% is agricultural land (UN, 2021). With a population of 13.6 million people – 38% of them living in

extreme poverty – and an unstable Gross Domestic Product (GDP) per capita of about US$1,239.90, the country is considered a low-income country (Steinbach, 2019).

As in many SSA countries, extreme poverty in Zimbabwe has traditionally been high in remote and poorly connected rural areas, where 70% of the population live. About 50% of the Zimbabwean rural population were estimated to be food insecure in 2019 (World Bank, 2020). However, food insecurity in Zimbabwe varies with ecological region (ZIMSTATS, 2019). Based on varied characteristics such as annual rainfall, temperature, agricultural productive potential of the soils and vegetation, the country is divided in to five ecological regions, with region 1 in the northern parts of the country having the highest annual rainfall, lowest temperature, high productive potential and dense vegetation, and Region 5, which extends to the southern parts, having the least annual rainfall, highest temperature, low productive potential and sparse vegetation. Regions with low productive potential are historically experiencing higher food insecurity than regions with high productive potential. For instance, Masvingo Province where this study was conducted, is situated in region 4. In addition, this region always experiences weather related shocks and is mostly suitable for drought resistant crops. This province is home to about 12% of the Zimbabwean rural poor (ZimStats, 2019). Figure 1.2 shows the location of the study area.

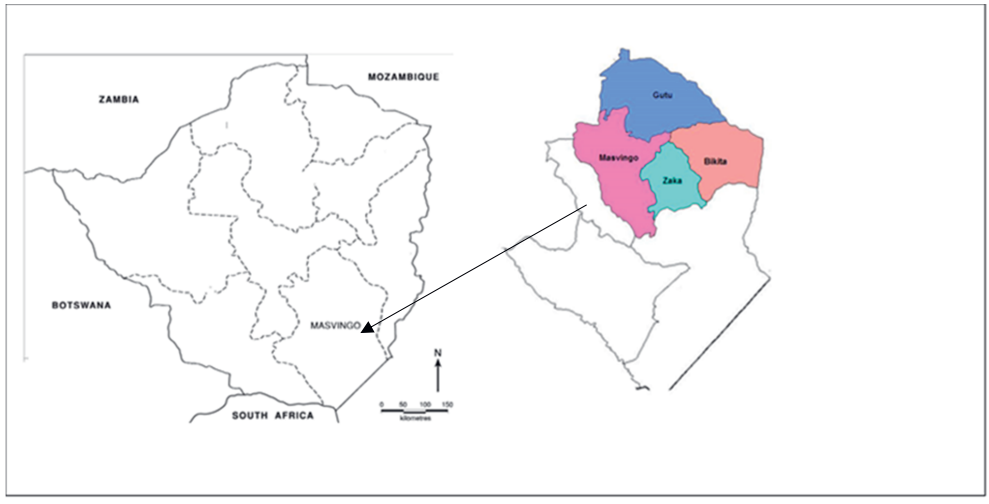


Figure 1.2: Map of Zimbabwe and location of study area

1.6.1. Sub-Saharan Africa: Challenges and Opportunities

Sub-Saharan Africa presents a relevant context to understand the role of value chain partnerships in influencing outcomes of agrifood resilience. The region has historically faced complex challenges, ranging from poverty, food insecurity, political instability and floods to frequent climate shocks which have left the majority of households, particularly smallholder farmers, more vulnerable to future shocks (OECD & FAO, 2016). Extreme poverty remains one of the most pressing challenges in SSA. As of 2018, nearly 433 million people in Africa were estimated to live on less than $1.90 per day, rising from 284 million in 1990 (World Bank, 2021b). More intriguing is that extreme poverty in SSA is intertwined with other complex problems, including food insecurity (FAO, 2016b). For example, amidst high rates of extreme poverty in SSA, about one third of the chronically hungry people come from this region, and in four people were reported to be undernourished in 2020 (FAO et al., 2021). Research has also shown that poverty and food insecurity are also linked to high levels of unemployment, political instability and natural disasters. For instance, high levels of poverty and food insecurity in Zimbabwe are shown to be prevalent among the unemployed households (ZimStats, 2019). Similarly, rural to urban migration is often linked to high levels of poverty and food insecurity in the rural areas (Awumbila et al., 2014; Möllers & Meyer, 2014; Tacoli et al., 2015). Studies have demonstrated that rural people are pushed out to cities in search of better living standards, to the extent that nearly 50% of the population in SSA are estimated to live in cities by 2035 (IMF, 2015). This trend is worrisome given challenges with rising urban unemployment, housing shortages and crime rates. Furthermore, climate change has continued to jeopardise the future of agrifood systems in SSA. Recent reports show that climate change-related shocks such as floods, droughts, cyclones, pests and diseases have negatively affected the agricultural sector in SSA (FAO, 2017c). These reports suggest that climate change is threatening the agricultural practices of smallholder farmers in SSA more than anywhere in the world, and this is projected to worsen.

On the other hand, while SSA is facing complex challenges of extreme poverty, food insecurity, urbanisation and climate change, it has continued to attract a lot of investment opportunities (African Development Bank, 2014). The region does not only boast a young and active population of about 1 billion people, half of whom will be under 25 years old by 2050; SSA is also considered the fastest growing region in the world, with GDP growth rates estimated be 3.3% in 2021 and 3.8% or higher in future, despite the Covid-19 pandemic (World Bank, 2021a). At the same time, while foreign direct investment (FDI) is declining globally,

investment inflows for SSA are growing. For instance, SSA attracted about $38.7 billion in FDI inflows between 2010 and 2017, which is a fortyfold increase from the 1970s (UNCTAD, 2018). Although the absolute figure is still small relative to other regions, its share globally has increased from 1.3% during the 1990s to 2.5% during the last decade (Ideue Kazuyo, 2018). This rapid growth is mainly due to changing investment perceptions, political stability and rapid advances in technology, especially in transport and communication as well as inclusive growth strategies that opened investment opportunities for the private sector – both local and international players. Accordingly, agriculture has been identified as the most promising sector for investment and growth (African Development Bank, 2019). For these reasons, dynamics around VCPs and fostering farmer entrepreneurship may play a role in the future of majority countries in SSA.

In light of the existing challenges, and amidst many opportunities in the agricultural sectors, many agree that organising and adapting organisations to facilitate smallholder farmers access to markets is urgently needed to strengthen the resilience of smallholder farmers (Chamberlain & Anseeuw, 2019). From this perspective, many have considered VCPs as novel organisational forms that has the potential to achieve both socio-ecological and economic objectives (Sulle et al., 2014). Although results on the impact of VCPs in SSA are still limited, existing studies suggests that VCPs may be used as a strategy for accessing resources, knowledge acquisition and competence development, which is important for transition towards resilient agri-food systems.

1.6.2. Zimbabwean Agriculture Sector at a Glance

The agricultural sector is considered the backbone of the Zimbabwean economy. About 70% of the population, the majority of them rural people, depend on agriculture as a source of livelihood and income (ZimStats, 2019). Estimates show that the sector contributes about 17% of the economy's Gross Domestic Product (GDP), while 60% of Zimbabwe's total employment is in agriculture. The sector supplies about 60% of the manufacturing industries raw materials and generates about 40% of the total export earnings (UN, 2021). Over the years, the sector has been rewarded as the main instrument for promoting economic-wide growth. Similarly, growth in the agricultural sector had multiplier effects on other sectors. According to FAO, performance of the Zimbabwean agricultural sector over the years was a key determinant of food insecurity and poverty levels (Bautista, 1998; Rukuni et al., 2006).

Before the year 2000, the sector was dualistic – with large-scale commercial farmers occupying most of the productive land and smallholder farmers, predominantly black farmers, occupying low productive land characterised by poor soil fertility, low rainfall, high temperatures and erosion. In 2000, the Zimbabwean government implemented the accelerated land reform programme that sought to redress that imbalances created by the colonial regime by compulsorily acquiring land from large-scale commercial farmers and giving it to black individuals from communal lands and urban areas (Scoones et al., 2012). As a result of the accelerated land reform programme, the Zimbabwean agriculture sector is now dominated by smallholder farmers who practice both subsistence and commercial agriculture in small farms of about 2 hectares (Muchetu, 2019). The number of smallholder farmers in Zimbabwe is estimated to be about 1.5 million, and they occupy 50% of the agricultural land. Their main commercial crops are tobacco, maize, wheat, cotton, sugar, horticultural crops, groundnuts and soybeans. Income from farming is used to supplement household income (ZimStats, 2019).

However, smallholder farmers in Zimbabwe continue to face many challenges namely, poor access to market information, poor input supply, lack of credit, high transport costs due to poor road infrastructure and vulnerability to weather related shocks which are strongly correlated to the occurrence of El Niño events (Kang'ethe & Serima, 2014). Since the 1970s, the country has been experiencing protracted droughts which has led to decreased production (Perez et al., 2015). Given these factors, together with macro-economic uncertainty in the early 2000 and the recent Covid-19 pandemic, the agricultural sector has continued to weaken, such that once known as the 'breadbasket of the Africa' in the 1980s and 1990s, the country has been reduced to a net food importer and considered the 'empty basket case of Southern Africa'(FAO, 2016).

To adapt to these challenges and deal with the growing levels of poverty, food insecurity and inequality, there is pressure on smallholder farmers and calls for rapid transformation in their agricultural practices (Mujuru, 2014; Makate et al., 2019). Equally, various stakeholders such as the Zimbabwean government, NGOs and civil society organisations are promoting the private sector to partner smallholder farmers in agricultural value chains (MAMID, 2013). Considered as long-term relationships between private businesses and smallholder farmers in the supply, production, distribution and marketing of agricultural products and services, the ultimate goal of these VCPs is job creation, impartation of skills, raising income and strengthening resilience of smallholder farmers (Mbira & Ncube, 2018). For instance, as an example, several agribusiness companies are now involving smallholder farmers in their businesses. In particular, the Smallholder-managed LEgume SEed Production (SLESEP); one

of the VCPs in this thesis represents value chain partnerships operating upstream of the value chain in Zimbabwe. The VCP was developed by a local private company in cooperation with local agro-dealers and with support from international NGOs, with the aim of engaging smallholder farmers as partners in legume seed multiplication and enhance their access to efficient modern farming technology (Genesis Analytics, 2018). For the company Zimbabwe Super Seeds, this represents a way to increase their supply chain efficiency and improve seed quality. At the same time, though, SLESEP hopes to raise the welfare standards of smallholder farmers by encouraging them to make use of climate-smart technologies that are more suitable to cope with climate shocks (VUNA 2017).

Several studies suggest that VCPs need to be adaptive and develop the competences of smallholder farmers. As explained in Section 1.2, this thesis is aimed at providing insights on when and how VCPs in the Zimbabwean agricultural sector can be organised to enhance outcomes of agrifood system resilience. As anticipated in Section 1.1 this chapter concludes with the outline of this thesis. The next section gives a snapshot and graphical exposition of the chapters in this thesis.

1.7. Thesis Outline

This thesis is comprised of six chapters. Following this chapter, the remaining chapters are described as follows.

1.7.1. Chapter 2: Value Chain Partnerships and Farmer Entrepreneurship as Balancing Ecosystem Services: Implications for Agrifood Systems Resilience

Given the disconnected literature strands to inform how value chain partnerships should be organised to support farmer entrepreneurship and outcomes of agrifood system resilience, this conceptual chapter aims to shed light on how value chain partnerships contribute to agrifood system resilience through smallholder farmer entrepreneurship. The guiding research question of this chapter is, *how can value chain partnerships be organised to support smallholder farmer entrepreneurship in ways that support resilience in the agrifood system?* Designed using a theory synthesis approach that involves integration of various literature strands (so far poorly connected), the paper suggests plausible linkages on the basis of logically supported arguments (Cropanza, 2016). The resulting conceptual framework connects a set of propositions worth empirical testing and refining in future research. In particular, the chapter argues that value chain partnerships shape smallholder farmer entrepreneurship and proposes an integrative

framework, corroborated with empirical illustrations, on the linkages between the organisation of VCP and smallholder farmer entrepreneurship and outcomes of agrifood systems resilience.

1.7.2. Chapter 3: Typologies of Entrepreneurial Behaviours Among Zimbabwean Smallholder Farmers: Implications for Livelihood Resilience

This empirical chapter seeks to operationalise and to assess smallholder farmer entrepreneurship in terms of farmers' entrepreneurial behaviours. Broadly, the chapter intends to provide insights on how to assess farmer entrepreneurial behaviours either at one point in time or overtime (entrepreneurial learning) and how it relates with farmer background, resource configurations and spatial contexts in the agrifood system. The guiding research question of this chapter is, *what are the dimensions of smallholder farmers' entrepreneurial behaviour that are relevant to assess the influence of the governance mechanisms of VCPs on outcomes of agrifood system resilience?* To contribute to this research gap, the chapter develops a typology of effectuation and causation as relevant entrepreneurial behaviours among enterprising smallholder farmers entering a seed-business initiative in a Zimbabwean rural context. Based on a multivariate analysis of 423 enterprising smallholder farmers, the chapter seeks to identify different groups of farmers based on their entrepreneurial behaviours and analyse how these behaviours relate with social, economic and spatial contexts of the smallholder farmer.

1.7.3. Chapter 4: Space to Learn? How Strategic Alliances Shape Causation, Effectuation and Livelihoods Resilience in Necessity Contexts

This empirical chapter explores how value chain partnerships shape effectuation and causation entrepreneurial behaviours. By cross-comparing cases of partnerships between one private company and several groups of smallholder farmers, the chapter builds theory on how value chain partnerships shape smallholder farmers' changes in entrepreneurial behaviour and resilience outcomes. The guiding research question of this chapter is, *how do the governance mechanisms of* VCPs *shape entrepreneurial behaviour and influence the outcomes of agrifood system resilience overtime?* Given the breadth of our inquiry, this chapter builds theory from multiple cases (Eisenhardt & Graebner, 2007) by zooming into the value chain partnerships linking one private firm – Zimbabwe Super Seeds (ZSS), a medium-sized company based in Zimbabwe– to seven associations of smallholder farmers independent from each other. The chapter relies on data from 96 interviews with farmers and ZSS staff, triangulated with direct observations and secondary data over a time frame of 16 months. The chapter is meant to show

how alliance-level pattern of changes in entrepreneurial behaviour, relates to the three governance mechanisms of VCPs and how the change in entrepreneurial behaviour relates to changes in livelihoods as an outcome of agrifood system resilience. The theory emerging from this chapter provides empirical insights on how differences in the governance mechanisms of VCPs shape farmer entrepreneurship and outcomes of agrifood system resilience in low-income markets.

1.7.4. Chapter 5: Governance Mechanisms and Entrepreneurial Learning Among Necessity Entrepreneurs in Strategic Alliances: A Configurational Approach

Using a configurational approach, this chapter explores how governance mechanisms of value chain partnerships combine with other factors to influence changes in entrepreneurial behaviours among various groups of smallholder farmers. The specific research question informing this chapter is '*How do governance mechanisms of a VCPs combine with smallholder farmer characteristics to shape individual entrepreneurial behaviour?*' Using qualitative comparative analysis – a comparative case method specifically designed to investigate complex causality (Ragin, 2014), this chapter addresses this overarching research question by exploring how the governance mechanisms of VCPs between a Zimbabwean private company and smallholder farmers in a seed-multiplication business combine with other factors to shape entrepreneurial behaviour. Departing from Chapter 4, this chapter is meant to explore how governance mechanisms of VCPs – either individually or collectively – combine with farmer characteristics to explain development of entrepreneurial behaviour.

1.7.5. Chapter 6: Thesis Synthesis, Discussion, and Implications

This chapter first gives a synthesis of the thesis. The thesis synthesis is followed by an overview of the methods used in this study and the key findings of the chapters presented in this thesis. These findings lead to the discussion and the main contributions to the literature and theories on entrepreneurship, organisation of VCPs and international development, as well as the implications for stakeholders in and around value chain partnerships. The chapter concludes with recommendations for policy and practice in designing value chain partnerships for entrepreneurship and agrifood system resilience. Accordingly, Figure 1.2 shows the outline of this thesis.

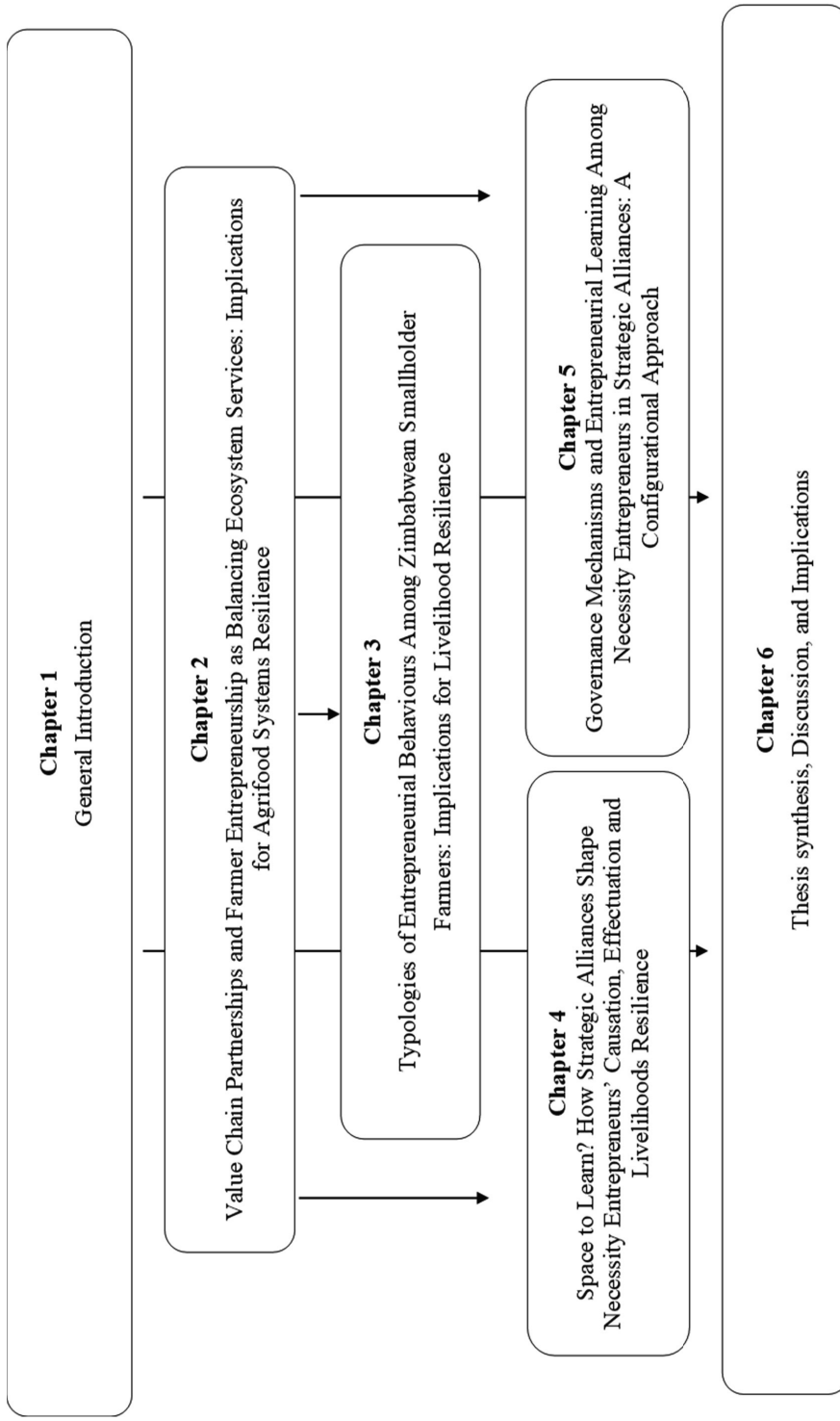


Figure 1.3 Outline of the thesis

Chapter 2

Value Chain Partnerships and Farmer Entrepreneurship as Balancing Ecosystem Services: Implications for Agrifood Systems Resilience

Abstract

Worldwide, the resilience of agrifood systems depends on the human ability to balance between socio-economic and ecological trade-offs. Recent ecosystem services literature acknowledges that smallholder farmers' participation to stakeholder partnerships and continuous learning influences their balancing ability. Yet, little research has so far focused on how smallholders' participation in partnerships with other value chain actors - such as companies supplying or procuring from them - shape their learning processes and, in turn, how their mindset and behavioural change influences agrifood systems resilience outcomes. To address this gap, this conceptual chapter advances a framework suggesting plausible linkages between the organization of value chain partnerships; smallholder farmer entrepreneurship (meant as the ability to redeploy resources innovatively in and around farms); and agrifood systems resilience outcomes (such as stabilizing rural livelihoods, supporting ecological services and enhancing socio-cultural services). This framework suggests that value chain partnerships are more effective in supporting the smallholder farmers' entrepreneurial learning: when they pool more resources (both tangible, like financial or physical assets, and intangible as knowledge or market information) among partners; when they distribute decision-making rights over their use more evenly; and when they balance between formal and informal coordination mechanisms. On the basis of empirical examples, these conceptual arguments suggest that policy incentives should be directed towards resource pooling, experimentation and learning to effectively support smallholder farmer entrepreneurship and their contribution to the achievement of agrifood systems resilience outcomes.

Keywords: participation; learning; rural livelihoods; agribusiness; farming systems.

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2.1. Introduction

In today's uncertain and turbulent markets - associated with complex and urgent challenges of food insecurity, poverty, inequality, ecological degradation and climate change – the importance of supporting the *resilience of agrifood systems* has gained traction in science, policy and civil society debate worldwide. Resilience of socio-ecological systems refers to the ability of a social system, intertwined with an ecological system, to predict, cope and bounce back after a disturbance (Holling, 1973; Folke, 2006). Through participation and learning at multiple scales, processes of human organization may facilitate or hamper resilience (Ungar, 2018). Therefore, the notion of resilience remarks the necessity for humans – including all actors in agrifood value chains – to develop organizational arrangements and individual behaviours that, in contexts of unpredictable change and adversities, continuously *balance trade-offs between the use of natural resources and the generation of economic and social benefits* (Costanza, 2000).

Balancing these trade-offs between ecological and socio-economic valuations (Costanza, 2000) is particularly challenging for smallholder farmers: since their economic and ecological boundaries are particularly stringent, they struggle to preserve natural resources while creating cultural and social value (Ango *et al.*, 2014). Yet, smallholders' ability to balance socio-economic and ecological trade-offs is critical for the resilience of agrifood systems. Small farms represent the largest proportion of farms globally and contribute to territorial economic development, regional food security and ecosystem services of social and cultural value (Rivera *et al.*, 2020). At the same time, smallholder farms face natural and economic constraints and disturbances that, if not managed and coped over time, may jeopardize the preservation of natural resources and the resilience of agrifood systems (Vignola *et al.*, 2015).

In the face of this challenge, the literature on ecosystem services has suggested several ways in which agrifood value chain actors – i.e., actors either upstream farmers (i.e., suppliers of seeds, fertilizers, and other inputs) or downstream farmers (i.e., trading, manufacturing and retailing firms) – can effectively partner with other stakeholders to cope with these trade-offs (Reed *et al.*, 2014; Benjamin *et al.*, 2018; Laterra *et al.*, 2019). In agrifood systems, *value chain partnerships* refer to long-term relationships among actors that produce, move, process and/or market goods or services from farmers to consumers – primarily with farmers (Trienekens, 2011). These partnerships have primarily the function of efficiently moving and transforming agrifood products from farm to fork, but they also have an important learning mission: they

shape partnering individuals' mindsets and behaviours depending on how collaboration is structured (Dentoni *et al.*, 2016; Salvini *et al.*, 2018). This literature did not investigate how value chain partnerships should be organized to support smallholder farmers' learning on how to balance between ecological and socio-economic trade-offs (Costanza, 2000). This is a notable knowledge gap across the ecosystem services and agrifood value chain fields, because understanding collective processes of participation and learning is essential to support the resilience of socio-ecological systems (Ostrom, 2009; Ungar, 2018).

To contribute to this debate, this paper sheds light on three interconnected themes: 1) how smallholder farmers participate in value chain partnerships; 2) how they develop their mindsets and behaviours through participation; and, ultimately, 3) how their processes of participation and learning help them balancing ecological and socio-economic trade-offs towards resilience. Specifically, this paper conceptually addresses the following research question: *when and how does the organization of value chain partnerships foster smallholder farmer entrepreneurship in ways that support their ability to balance ecological and socio-economic trade-offs?* The key argument of this paper is that development of smallholder farmers' entrepreneurial mindsets and behaviours – or, hereinafter, *smallholder farmer entrepreneurship* – represents an important learning goal of value chain partnerships for the resilience of agrifood systems. Smallholder farmer entrepreneurship refers to the process of effectively redeploying natural, financial, social and physical resources in and around farms to achieve benefits, reduce costs, or mitigate risks (Dias *et al.*, 2019). While an unbalanced pursuit of economic benefits might have detrimental effects on socio-ecological systems (Niska et., 2012), smallholders' effective deployment of their available resources helps them to balance ecological and socio-economic trade-offs, and thus support their agrifood systems to cope with adversities (Rosenstock *et al.*, 2020; Kangogo *et al.*, 2020). Furthermore, this paper delves into how value chain partnerships can be concretely designed or (re)organized – in terms of resource pooling, distribution of rights over the use of resources and coordination mechanisms – to stimulate smallholders' entrepreneurial learning processes in ways that help them balancing ecological and socio-economic trade-offs.

2.2. Conceptual Design

To shed light on how value chain partnerships contribute to agrifood system resilience through smallholder farmer entrepreneurship, this conceptual paper is designed with a theory synthesis approach (Jaakkola, 2020). As a result, this approach involves integration of literature strands

so far poorly connected. As a result of process of integration, a conceptual framework – in this paper, Figure 2.1 – suggests plausible linkages on the basis of logically supported arguments, yet without the ambition of empirically verifying them (Cropanzano, 2016). This framework connects a set of propositions worth empirical testing and refining in future research because of their important policy and management implications.

In line with this approach, the research team has selected a set of articles that bridge, at least to some extent, the poorly connected strands of the literature in the context of agrifood systems. This involved first searching – across search engines *Google Scholar*, *Scopus* and *Web of Science* – for synonyms and dimensions (or features) of the three key concepts under study: value chain partnerships, farmer entrepreneurship and agrifood systems resilience. Based on the full read of the identified papers, when the literature in the context of agrifood was too thin to advance a compelling proposition, the research team resorted to studies outside the agrifood contexts (i.e., linking broader forms of collective action, entrepreneurship, and socio-ecological resilience). Ultimately, the selected articles are cited in the following sections (see appendix A), and propositions that compose the integrative framework were built based on evidence from these articles (in sections 3-4) and corroborated with empirical illustrations accordingly (in section 5).

2.3. Linking Value Chain Partnerships to Smallholder Farmer Entrepreneurship

On the basis of the reviewed literature, we argue that three key organizational features of value chain partnerships shape smallholder farmer entrepreneurship: 1) the pooling of resources (e.g., information, knowledge, land, seeds, fertilizers, or storage space); 2) the distribution of decision-making rights over the use of resources; and 3) the formality of coordination mechanisms among partners (Figure 2.1).

We explain how these features of partnerships with agrifood value chain actors influence smallholder farmer entrepreneurship as follows.

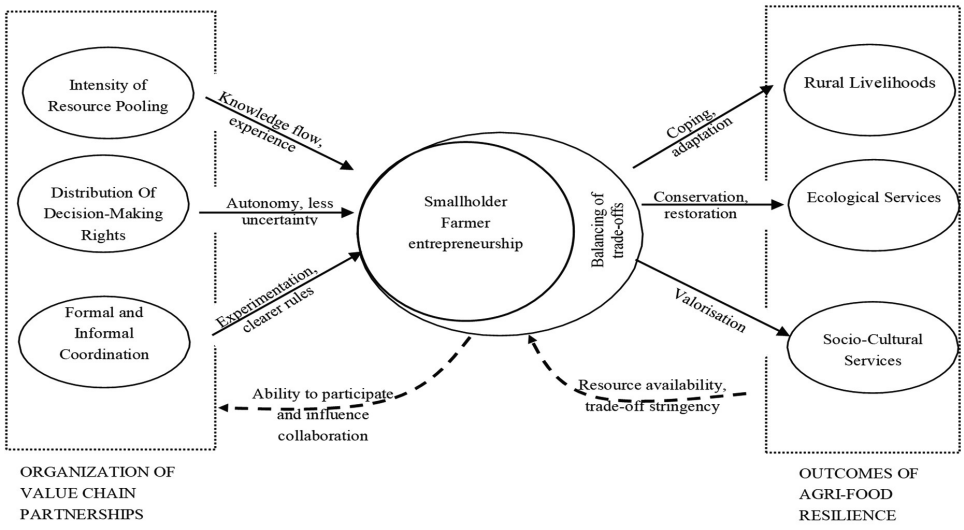

Figure 2.1: Linking organisation of value chain partnerships, smallholder farmer entrepreneurship and outcomes of agrifood system resilience

2.3.1. Intensity of Resource Pooling and Smallholder Farmer Entrepreneurship

Value chain partnerships vary in terms of the extent to which individual partners' resources - either tangible (e.g., financial, human, physical or natural capital) or intangible (e.g. information, knowledge, or reputation) – are pooled and thus jointly accessed among other partners (Ménard, 2004; Slangen *et al.*, 2008). In the agrifood system, some partnerships pool and give access to a wide set of common resources (e.g., making a joint investment in a pre-harvest phase, such as irrigation, or in a post-harvest phase, such as storage space or a cooling facility). This is for example the case of partnerships between farmers' cooperatives and their marketing partners in fruit and vegetable value chains in Sub-Saharan Africa (Narrod *et al.*, 2009). Other partnerships instead pool only a small set of resources (e.g., information, knowledge, but no physical or financial capital). This is for example the case of multi-stakeholder platforms designed to link farmers to potato traders and processors in Latin America (Thiele *et al.*, 2011). Therefore, value chain partnerships in agrifood systems widely vary on their intensity of resource pooling (Miralles *et al.*, 2017).

We argue that this intensity of resource pooling influences smallholder farmer entrepreneurship. The literature on agrifood value chains suggests that one way for value chain partnerships to

influence farmer entrepreneurship is by enhancing knowledge flows (Grandori, 2013). The pooling of physical resources embodies knowledge, and, through it, farmers expand their toolbox on which resources to recombine, and how. Farmers' knowledge acquisition through more access to pooled resources might be transaction-specific (Cholez *et al.*, 2020) but, when farmers combine external interactions and internal communication, might also support farmers' ability to redeploy these resources innovatively (Lans *et al.* 2008). An example from rural Canada suggests that, when smallholder farmers access more pooled resources through their buying partner, they learn from each other how to scale up their business in ways that maintain their operations financially sustainable over time (Magnan, 2012).

Smallholder farmers are relatively resource-scarce actors in the value chain. As such, along with knowledge flows with other partners, they build entrepreneurial mindsets and behaviours through the experience of accessing pooled resources. Access to a common pool of resources expands ways for recombining resources innovatively in uncertain situations (Foss *et al.*, 2007). Experimentation, in particular, is a powerful mechanism for entrepreneurial learning (Chandler *et al.*, 2011). As they have more room to re-organize resources in and around their farm, smallholder farmers learn over time how to redeploy them more effectively (Foss & Klein, 2008). For example, facilitation of farmer-farmer and farmer-buyer interactions through stakeholder meetings and 'training field days' may create opportunities to maximize entrepreneurial learning from the experience of pooling resources (Hinrichs *et al.*, 2004).

Conversely, value chain partnerships that limit the intensity of resource pooling risk leaving smallholder farmers systematically at a learning disadvantage (du Toit, 2011; Ponte, 2010). With less access to resources, the most resource-scarce actors have fewer affordances to recombine resources innovatively, thus to experiment and learn (Dentoni *et al.*, 2018). Hence, because of having fewer alternatives on how they recombine resources, they stick to routine habits with available resources (Sarasvathy, 2001) and become less prone to adaptive behaviours and mindsets as external circumstances change over time (Yaseen *et al.*, 2018).

On the basis of this literature, we advance the following proposition:
P1. The higher the intensity of resource pooling in value chain partnerships, the more smallholder farmers develop entrepreneurial mindsets and behaviours.

2.3.2. Distribution of Decision-making Rights and Smallholder Farmer Entrepreneurship

Value chain partnerships vary also in terms of distribution of decision-making rights over the use of resources. This entails the set of rights – i.e., the right to use them, alter them, exclude others from their use, appropriate their returns, or transfer them – that direct the activities and use of productive assets over the pooled resources (Ménard, 2004; Slangen *et al.*, 2008). These decision-making rights give, overall, not only access to resources but also voice and agency on using them for purposes that they consider beneficial for themselves and other partners (Grandori, 2013). For instance, many contractual arrangements between companies and smallholder farmers historically assign the majority of decision rights to the former ones: on the basis of their market power, companies decide which products and services farmers need to deliver, as well as when and how (Hu & Hendrikse, 2009). In these cases, the distribution of decision-making rights is low, as it strongly skews towards one partner only. In other cases, such as in recent sustainable cocoa initiatives in West Africa, companies deliberately expanded the terms of negotiation with farmer organizations to give farmers more room in decision-making (Nelson & Phillips, 2018). Yet, also in this case, the actual distribution of rights ultimately depends on democratic processes taking place within farmer organizations.

We suggest that the distribution of decision rights in value chain partnerships matters for smallholder entrepreneurship. A few empirical studies in the agrifood sector demonstrate that farmers' participation in decisions on how to use the pooled resources gives them the incentive to recombine those pooled resources autonomously. For example, Kilelu *et al.* (2014) found that onion farmers in Kenya learn how to better articulate their demands to partners, and thus redeploy resources in ways that create a balance between socio-economic and ecological trade-offs, when they participate more in partnership decision-making processes. Furthermore, cooperatives that collaborate with value chain partners in Eastern Africa show that farmers' distribution of ownership and access rights over resources rights stimulates their participation in entrepreneurship (Bijman & Doorneweert, 2008).

A peculiar pathway through which distribution of decision-making rights in value chain partnerships influences smallholder entrepreneurship is through ownership of resources. The general literature suggests that distributed resource ownership stimulates innovative thinking among members in organizations, because ownership makes them perceive less uncertainty over the outcomes of their innovation (Alvarez & Busenitz, 2007). In agrifood value chain

partnerships, the ownership rights over land resources represents specifically a key determinant for smallholder farmer entrepreneurship. Ample evidence suggests that smallholders invest in new farm and non-farm activities and diversify agricultural production to mitigate risks and stabilize livelihoods when they co-own the land that they grow with other farmers in value chain partnerships (Anderson *et al.*, 2006; Harper, 2013).

The opposite happens in situations where decision-making rights are concentrated on only one leading partner (Crick & Crick, 2018). When smallholder farmers have narrow decision rights over pooled assets and key activities related to their core business, they are likely to follow routines due to pressures from partners that control the pooled resources (Wiltbank *et al.* 2009). Hence, their discretion to act entrepreneurially is limited because other leading players put strict instructions on the use of pooled resources and in farm activities at the expense of smallholder farmers' interests (Olson, 1971). For example, orange farmers in Northern India struggled to become more entrepreneurial as the local government and their buyers initially failed to engage them in decision-making processes over the use of market information and the organization of extension and training services (Choudhary *et al.*, 2015).

In line with this literature, we suggest the following proposition:
P2: The wider the distribution of decision-making rights on pooled resources in value chain partnerships, the more smallholder farmers develop entrepreneurial mindsets and behaviours.

2.3.3. Formality of Coordination Mechanisms and Smallholder Farmer Entrepreneurship

Value chain partnerships vary also in terms of how they implement and enforce the distribution of decision-making rights over the use of resources. These ways of enforcing rights are referred to as coordination mechanisms among partners (Ménard, 2004), as they constitute formal and informal rules and norms that guide partners' behaviours and expectations. In the agrifood industry, in particular, some partnerships organize mostly through formal mechanisms such as legal contracts, bylaws, or other types of written sets of rules) (Aiken & Hage, 1968). Others, instead, rely on informal mechanisms such as personal trust relationships and social capital (Lu *et al.*, 2008).

We argue that smallholder farmer entrepreneurship varies depending also on how formal and informal coordination mechanisms are combined. A vast literature suggests that, when formal institutions are weak, trust relationships between farmers and their partners are essential for an

effective use and recombination of pooled resources (Gao *et al.*, 2017). When engaging informally, for example, farmers and their partners establish more adaptive ways of redeploying their assets (Pindado *et al*., 2018) and, among farmers, they better complement each other's resources (Mupfasoni *et al*., 2019). Trust, in particular, stimulate an eagerness to share knowledge and information among partners (Stahl & Sitkin, 2005) and create a learning environment more apt for experimentation (Jansen *et al.*, 2005).

Too heavy reliance on informal coordination mechanisms, however, might exclude some less resource-endowed farmers from learning processes. For example, smaller, younger and less educated coffee farmers in Uganda were found at a learning disadvantage relative to others in partnerships driven mostly by social interactions (Barzola Iza & Dentoni, 2020). In general, more peripheral and less connected actors risk exclusion from entrepreneurial learning unless formal coordination mechanisms are also designed (Rae, 2017). Moreover, the presence of formal mechanisms acts as a safeguard for less powerful actors to prevent opportunism and free-riding by more powerful actors over the use of pooled resources (Chamberlain & Anseeuw, 2019). Finally, more formal coordination and control mechanisms reduce uncertainty as a result of clear rules, routines, and responsibilities of each party (Kim *et al.*, 2003), thus making partners more comfortable in redeploying resources more innovatively. When coordination mechanisms are too formal, nevertheless, partners may not be prone to innovate anymore as they see limited room for recombination of resources, hence learning and experimentation may be hampered (Hjorth, 2004). In other words, formal coordination cannot fully substitute informal coordination in partnerships to support entrepreneurial learning processes. Hence, a balance between formal and informal mechanisms needs to be found (Šūmane et al., 2018).

Hence, we propose the following proposition according to the literature:
P3: The more balanced the use of formal and informal coordination mechanisms in value chain partnerships, the more smallholder farmers develop entrepreneurial mindsets and behaviours.

While these propositions suggest that the organization of value chain partnerships shapes their members' mindsets and behaviours, we realize that this influence might also take the opposite direction: smallholder farmers may influence the organization of partnerships (see feedback loop from entrepreneurship to value chain partnerships in Figure 2.1). In line with the Giddens' principles (1984), members of organizations simultaneously influence, through their own agency, and are influenced by governance mechanisms. This is an important issue to take into account, because farmers that are *initially* more entrepreneurial in value chain partnerships

might also be more active in taking decisions and accessing resources at the expense of other (less entrepreneurial) farmers, thus triggering processes of exclusion (Barzola Iza & Dentoni, 2020). This makes it vital for partnerships to design formal mechanisms of inclusion because, when leaving participation informal, exclusion of less active farmers occurs more frequently (Dentoni *et al.*, 2018).

2.4. Smallholder Farmer Entrepreneurship and the Resilience of the Agrifood system

Processes of participative collaboration and learning are critical for the resilience of socio-ecological systems (Ungar, 2018), including of agrifood systems (de Kraker, 2017). However, the literature has not sufficiently explored yet how to support agrifood resilience through value chain partnerships and the development of smallholder farmer entrepreneurial mindsets and behaviours. By effectively redeploying resources in and around farming (Dias *et al.*, 2019), we argue that smallholder farmers developing entrepreneurial mindsets and behaviours are more capable of balancing socio-economic and ecological trade-offs (Costanza, 2000). This act of balancing represents a challenge for resource-constrained actors yet it is vital to accomplish it also at small-scale and in decentralized ways (Ostrom, 2009), because disturbances affect (sub)systems in different yet interconnected ways at multiple scales. For instance, as they redeploy their livestock and assets in sustainable land grazing practices, small-scale agro-pastoralists seek a balance between supporting their household and community (sub)systems and, at the broader ecological ecosystem level (Bailey & Buck, 2016).

By balancing socio-economic and ecological trade-offs, we argue that smallholder farmer entrepreneurship supports the resilience of agrifood systems through three outcomes: rural livelihoods, ecological services and socio-cultural services. First of all, rural livelihoods are positively sustained when smallholder farmers have the ability to cope with sudden disturbances – either of ecological, e.g. a typhoon, or socio-economic nature, e.g. a civil unrest or market disruption – in a swift manner by recombining their resources (Chapin *et al.*, 2006). Even in situations when access to resources is very constrained, small-scale actors with an ability to improvise and hustle resources effectively (Baker & Nelson, 2005) in the short-term can cope with shocks or persistent stresses (Holt & Littlewood, 2017). Beyond short-term improvisation supporting coping strategies, smallholder farmer entrepreneurship triggers rural livelihoods also through longer-term adaptation (Rosenstock et al., 2020a). For example, small vegetable farmers in Ghana vary notably on their capacity to adapt farming practices such as fertilization,

supplementary irrigation, intercropping and mixed farming in response to increasing temperatures and declining rainfall patterns (Williams *et al.*, 2019).

Second, we contend that smallholder farmer entrepreneurship supports ecological services, hence supporting the resilience of agrifood systems, through two main pathways: conservation and restoration (Makate *et al.*, 2019; Rosenstock *et al.*, 2020). The former involves adopting practices that maintain ecological services, the latter to their recovery. Recent evidence shows that entrepreneurial coffee smallholders in Uganda, for example, are better positioned than others in improving water and land efficiency interventions (Barzola Iza & Dentoni, 2020). Similarly, more entrepreneurial potato farmers in Kenya changed seed regimes, rotated crops, and engaged in minimum tillage as knowledge-intensive conservation practices (Kangogo *et al.*, 2020). As an example of recovery, tea farmers in Tanzania were able to revitalize overexploited and nearly abandoned plantations by mediating between the market demand from their buyers and the natural rhythm (van Hille *et al.*, 2019). Conversely, when showing less entrepreneurial mindsets, farmers refrain from ecosystem restoration initiatives as they perceive too tight trade-offs with their rural livelihoods (Hansson & Kokko, 2018).

Finally, through the balancing of socio-economic and ecological trade-offs, we suggest that entrepreneurial smallholders support agrifood systems resilience through the provision of socio-cultural services. Empirical evidence shows that farming plays a fundamental role in increasing the cultural valuation of ecosystem services. Through their investments, farmers play a vital role in moulding landscapes through valorisation of the human-nature nexus (Plieninger *et al.*, 2014). For example, entrepreneurial olive oil smallholders in Italy engage purposively to balance the development of market relationships for their own farm with the socio-cultural evaluation of their landscapes through a myriad of interconnected networking activities (Dentoni & Reardon, 2010). At a larger scale than landscape, Obschonka *et al.* (2016) found – for example, in rural United Kingdom and United States – that regions with more prevalence of entrepreneurial mindsets are more socio-economically prepared for disturbances than others; even when their infrastructure development was the same.

Accordingly, as illustrated in the right-hand side of Figure 2.1, we propose that:

P4: The more smallholder farmers develop entrepreneurial mindsets and behaviours, the more they support the resilience of agrifood systems through the balancing of (socio-economic and ecological) trade-offs.

Not only smallholder farmers' entrepreneurial mindsets and behaviours support agrifood system resilience but also, vice versa, farmers embedded in resilient systems might have higher chances to be entrepreneurial (Mcinnis-bowers *et al.*, 2017). For example, indigenous communities in Costa Rica started collaborating to bring novel products to the market once their marginalization process from the rest of society had decreased; and not vice versa (Mcinnis-bowers *et al.*, 2017). This means that the relationships between entrepreneurship and resilience are path-dependent: when resources available to smallholder farmers are less available, socio-economic and ecological trade-offs are more stringent and therefore more difficult to balance (Figure 2.1; see feedback loop from outcomes of resilience to entrepreneurship). This path-dependency makes it even more important for value chain partnerships to design their processes in ways that purposively support smallholder farmers from escaping from this vicious cycle.

2.5. Empirical Illustrations

2.5.1. Three Illustrations of Value Chain Partnerships in Agrifood sector

To illustrate linkages between value chain partnerships, smallholder farmer entrepreneurship and resilience of agrifood systems, we provide three examples of value chain partnerships from Italy, Malawi and Zimbabwe. These cases all involve an agribusiness company partnering with smallholder farmers, as well as other stakeholders outside the agrifood value chain (e.g., research institute, NGO, farmer association, international donor), seeking to develop a pathway towards resilient agrifood systems through the balancing of ecological and socio-economic trade-offs. Yet, they differ in their position of the partnership in the value chain (i.e., upstream and downstream), agricultural sub-sectors, geographical location and, importantly, in their organizational features (Table 2.1).

A first example of value chain partnership is the Agrosat platform in Italy. Launched by Barilla, a global manufacturing company turning wheat and vegetables into a variety of pasta, sauces and meals, Agrosat platform aims to support and expand farmers' use of precision farming with the Italian National Research Council and local wheat and vegetable farmer associations in Apulia and Emilia-Romagna regions (Agrosat, 2018). This partnership aims to support farmers' adaptive use of agricultural inputs tailored to the specific and timely agro-ecological conditions of the farmed field (Barilla Group, 2018), thus supporting the resilience of farmers and their ecosystem. Along with preserving the ecological value of ecosystem services, Barilla through

Agrosat seek to balance a more efficient and higher quality supply of wheat and vegetables for their products.

Table 2.1: Value chain partnerships and pathways of agrifood systems resilience

Value chain partnership	Partners involved	Resources pooled	Balance between ecological and socio-economic trade-offs
Agrosat Platform	– **Barilla** – National Research Council of Italy (CNR) – 2 Farmer Associations in Apulia & Emilia-Romagna regions	– Technological expertise/ – information	– Support and expand – precision farming in Apulia and Emilia-Romagma region of Italy
Agriculture Exchange for Africa (ACE)	– **Cargill** – **Export Trading Group (ETG)** – Smallholder farmers in Malawian Smallholder Association (NASFAM) – USAID, GIZ, SNV	– Storage space – Finance/loans – Transport – Information – Extension advisory – Smallholder farmer trainings – Agricultural inputs – Third party guarantee	– Enhance smallholder market participation in the maize and legume agrifood system of Malawi
Smallholder- managed LEgume SEed Production (SLESEP	– **Zimbabwe Super Seeds (ZSS)** – Smallholder farmers organised in Growers associations in Southern Zimbabwe – Local agro dealers – UK- Department of International Development (DFID) – Local Banks (Agribank) – Zimbabwe Ministry of Agriculture Department of Research and Specialist Services – Seed Services Unit	– Trainings – Storage space – Transport – Social events e.g., Field days – Facilitation of learning tours – Water provisioning equipment – Land – Labour – Purchase space – Seeds – Agricultural inputs – Finance/Loans – Information	– Engage smallholder as active certified seed multipliers in the dry regions of Southern, Zimbabwe

Source: Authors

The Agricultural Commodity Exchange for Africa (ACE) represents a second example from Malawi. Founded by a coalition of agricultural trading companies (including Cargill and Export Trading Group) and the Malawian National Smallholder Farmers' Association (NASFAM), with initial seed funding from US and several European development aid agencies (USAID, Germany's GIZ, and Netherlands' SNV), ACE aims to facilitate trade of maize and legumes (soybeans, groundnuts, common beans and pigeon pea) from farmers and traders to

manufacturers and traders (ACE, 2019). Along with creating an economic benefit for the trading companies, ACE seeks to create viable conditions for farmer participation to trade and reduce their vulnerability. These include: safe storage space for commodities to be sold when seasonal prices increase; loans using the stored commodity as collateral or, in more technical terms, a warehouse receipt system; and an information system based on text-messaging farmers through their cell phones (Dentoni & Krussmann, 2015);

Third, the Smallholder-managed LEgume SEed Production (SLESEP) model represents a value chain partnership operating upstream of the value chain in Zimbabwe. Developed by the company Zimbabwe Super Seeds in cooperation with local agro-dealers and with support from the UK Department for International Development (DFID), SLESEP aims to engage smallholder farmers as active seed multipliers of certified seed and enhance their access to efficient water infrastructure and mechanized small-holder tillage systems (Genesis Analytics, 2018). For the company Zimbabwe Super Seeds, this represents a way to expand their procurement sources of improved quality seeds. At the same time, the SLESEP model intends to preserve ecosystem services, encouraging smallholder farmers to engage with seed production and water-use technologies that are more suitable to cope with climate shocks in their semi-arid region.

2.5.2. Illustrations of Value Chain Partnerships and Smallholder Farmer Entrepreneurship

Three examples illustrate how the organization of value chain partnerships might concretely relate to smallholder farmer entrepreneurship (Table 2.2). On Barilla's Agrosat partnership with CNR and two farmer associations, our conceptual framework (synthesized in the propositions P1-P4 discussed above) would question, for example, how the formal or informal mechanisms in this partnership facilitate the sharing of knowledge among the involved partners. For example, it would make a difference if Barilla and CRN provide a set of online information on what and how to use agricultural inputs given the local soil and weather conditions to farmers (P1). It would make a difference on farmers' mindsets and behaviours if there were interactive sessions – either online, in the field, or in a dedicated training space - for farmers to experiment with the information received, engage with partners and learn from their personalized feedback (P3). Moreover, it would impact smallholder farmer entrepreneurship if less resourceful (e.g., less educated, smaller, less technology-rich) actors of the farmer associations were able to interpret and use the information received through Agrosat. According to the theoretical arguments outlined above, if the organization of Agrosat entails rich bi-directional

communication among the partners and a voice for the less resourceful members, then the involved partners are more likely to balance between market and ecological trade-offs and, ultimately, to better adapt and cope with systemic shocks (P4).

In the case of ACE in Malawi, a recent data collection and analysis also shows the relevance of promoting smallholder farmer entrepreneurship in value chain partnerships (Dentoni *et al.* 2020). Funded by private trading companies and public donor funding, ACE staff strived to provide farmers accurate and rich market information and knowledge to support their participation to a commodity storage scheme (P1). Despite the established communication routines and practices established to inform farmers about ACE's available resources and services (storage, credit, agricultural inputs, etc.) for many years the majority of farmers felt reluctant to participate to ACE (Dentoni & Krussmann, 2015). When participating, if outcomes were not as expected, many farmers felt poorly understood or even misguided by ACE staff (P2). These challenges to trigger mindset or behavioural changes led ACE partnership staff, in recent years, to reflect on how to adapt their coordination mechanisms. Instead of transferring information and knowledge to farmers (with the assumption that it would suffice to trigger their entrepreneurial behaviours), ACE is now seeking to decentralize their trainings through farmer field schools and community events (P3). This is meant to make communications and decision-making practices among farmers and other ACE partners more distributed and interactive (Moller *et al.*, 2020). This has been their adaptation strategy to support the resilience of the Malawian and regional maize and legume systems (P4).

Finally, Zimbabwe Super Seeds' SESLEP represents an example of value chain partnership upstream in an agrifood value chain, i.e., in the provision and multiplication of drought-resistant seeds. The organization of SESLEP entails training by Zimbabwe Super Seeds and staff of an NGO with partial support of public donor funding. This complements contracts between farmers and their seed suppliers for seed multiplication. As part of SESLEP, partnering farmers co-access - to a certain extent - resources such as land, seeds and water-provisioning equipment (P1). Through meetings and other events, partnering farmers share – to some extent - decisions rights on production, input use, resources, activities with Zimbabwe Super Seeds (Genesis Analytics, 2018) (P2). The combination of contractual arrangements and training grounded on the development of business skills through mentorship and experimentation in the field serves the purpose of accelerating farmers' process of learning-by-doing (P3). In SESLEP, it would be important to assess to what extent smallholder farmers are able to experiment and interact through this combination of trainings and contracts for seed multiplication. Therefore, on the

basis of the conceptual framework (Figure 2.1), it would be plausible to expect that partnership organization translates into smallholder farmers' entrepreneurial learning, thus supporting the resilience of the agrifood system surrounding them (P4).

Table 2.2: Organisation of value chain partnerships and smallholder entrepreneurship

Value Chain Partnership	Intensity of resource pooling	Distribution of decision-making rights	Combination of formal/informal mechanisms	Partnership support to smallholder farmer entrepreneurship
Agrosat, Italy	**Low:** Weather information shared with farmers, and knowledge on how to adapt ag input use to local weather conditions. No physical resources are pooled.	**Low:** Farmers have little influence on which and how information is shared.	**High:** Farmers and their associations bond with Barilla into a long-standing trust relationship beyond the Agrosat platform.	**Low:** Despite the strong trust linkages between farmer associations and Barilla, farmers' limited access to pooled resources and influence on partnership decisions limits their entrepreneurial mind-sets and behaviour.
Agricultural Commodity Exchange (ACE), Malawi	**High:** Facilitated access to agricultural inputs, storage space, credit through warehouse receipt system, market information and knowledge.	**Low:** Farmers and their associations have little influence on which and how agricultural inputs, storage space, trainings and services from rural advisors are shared.	**Medium:** Farmers have modest but increasing trust relationships with ACE managers and rural advisors. Despite geographical dispersion, ACE is organizing training platforms to underpin longstanding relationships.	**Medium:** Despite increased access to pooled resources through the partnership and building trust relationships, smallholder farmer entrepreneurship is hampered by the limited farmers' influence on partnership decisions.
Smallholder-managed Legume Seed Production (SLESEP), Zimbabwe	**High:** Information, knowledge, seeds, water access, inputs for seed multiplication are shared with farmers.	**Medium:** Through their associations, farmers voice and shape, to some extent, how and to who to sell the seeds that they multiply.	**High:** Farmers and Zimbabwe Super Seeds staff established trust relationships facilitated by the close geographical distance.	**High:** Despite the moderate influence of partnership decisions, smallholder farmers develop entrepreneurship because of their increased access to pooled resources and informal relationships with partners.

Source: Authors.

2.6. Scientific, Managerial and Policy Implications

This conceptual paper has proposed an integrative framework (Figure 2.1), corroborated with empirical illustrations, on the linkages between the organization of value chain partnerships, smallholder farmer entrepreneurship and the resilience of agrifood systems. This contributes to

the literature on ecosystem services (Reed *et al.*, 2014; Benjamin *et al.*, 2018; Laterra *et al.*, 2019) – and, more specifically, to the current policy debate on agrifood systems resilience by focusing on two underexplored and interconnected drivers of smallholders' ability to balance between socio-economic and ecological trade-offs (Costanza, 2000). These are:

- First, the *organization of value chain partnerships* between agrifood companies and smallholder farmers. Relative to the existing literature, we propose that how partnerships are organized – specifically, to what extent resources are pooled, who takes decisions over them, and how (formally or informally) these decisions are implemented – shapes the balancing of socio-economic and ecological trade-offs (Costanza, 2000) and, ultimately, for the resilience of agrifood systems (Milestad *et al.*, 2010; de Kraker, 2017; Ungar, 2018).
- Second, smallholder farmer entrepreneurship as mindsets and behaviours that involve redeploying resources innovatively in and around farms (Dias *et al.*, 2019). Relative to the existing literature (Milestad & Darnhofer, 2003), Darnhofer *et al.*, 2010) we add that smallholders' entrepreneurial mindsets and behaviours contribute to explain their capacity of balancing socio-economic and ecological trade-offs (Costanza, 2000).

While it is beyond the scope of conceptual papers like this to empirically demonstrate the advanced propositions, we encourage future interdisciplinary research, across natural and social sciences, to empirically test and refine them.

Advancing this line of research at the nexus of value partnerships, entrepreneurship and agrifood system resilience is important for policymaking worldwide. Developing policy and value chain incentives that stimulate smallholder farmer entrepreneurship as a balancing between socio-economic and ecological trade-offs needs to be at the core of resilience-building strategies. Aligning to the conceptual framework that we propose, for example, support income or grants might better stimulate smallholder farmer entrepreneurship if pooled in existing value chain partnerships involving them – as advanced in our first proposition (P1) - rather than distributing it to farmers individually. Furthermore, policies that seek to strengthen the support of agricultural knowledge innovation systems for supporting smallholder farmer investments in market adaptation, incentives should be dedicated to either to value chain partners (e.g., farmers' suppliers and buyers) or local policy implementers (e.g., municipalities or regional agencies) that play a catalyst roles to convey the expertise of civil society organizations, extension agents, and research organizations (including universities) towards smallholder farmers' entrepreneurial learning. These organizations should demonstrate expertise in

catalysing, both formally and informally (in line with P3), resources necessary for smallholder farmers to innovate and balance ecological and socio-economic trade-offs.

Along policymakers, future refining and testing of our conceptual framework have implications also for managers with leading positions in value chain partnerships (e.g., agrifood company managers, such as procurement managers or farmers' training managers). Our conceptual framework suggests that agrifood managers should (re)design value chain partnerships not only in terms of supply chain efficiency and (short-term) market competitiveness, but also and mostly as learning environments – even as living labs – for farmers and other partners to experiment and learn how to redeploy resources innovatively and to explore new ways of balancing ecological and socio-economic trade-offs (in line with P4). As unintuitive as it might seem, managers leading agrifood value chain partnerships should voluntarily give away some of their power to allow other partners, and smallholder farmers in particular, to actively participate on decisions over the use of pooled resources in partnerships (in line with P2). To support the (re)distribution of decision-making rights in value chain partnerships, public and non-profit actors can put pressure on agribusiness companies (Ingenbleek & Dentoni, 2016) for example through monitoring and advocacy or, alternatively, through funding dedicated to the effective support of smallholders' entrepreneurial learning. Depending on context, for example, these managerial changes in value chain partnerships would support the effectively implementation of agricultural policies not only in terms of boosting rural innovation, but also in terms of redistributing power in the food chain, in the process of supporting agrifood systems resilience.

Chapter 3

Typologies of Entrepreneurial Behaviours Among Zimbabwean Smallholder Farmers: Implications for Livelihood Resilience

Abstract

The purpose of this chapter is to explore entrepreneurial behaviours among smallholder farmers in Zimbabwe and considers their implication for outcomes of livelihood resilience in a resource-constrained and turbulent rural context. Using multivariate statistics, we examined survey data from 423 on-farm entrepreneurs in rural districts of Masvingo Province in Zimbabwe, to explore categorisation patterns that best describes their differences. Findings of this analysis show that rural smallholder farmers are heterogenous in terms of their entrepreneurial behaviours. Four clusters were identified: non-entrepreneurial, goal-driven, means-driven and ambidextrous. Along with entrepreneurial behaviours, these clusters differ significantly in terms of demographics, education levels, farm size, distance to the market, social connections, seasonal sales and farm income. Since entrepreneurial behaviours help sustaining smallholder farmers' incomes and livelihoods in different ways, this chapter suggests that farmers would benefit from tailored support programmes that account for this heterogeneity. Future research could analyse when and how these entrepreneurial behaviours develop over time.

Keywords – entrepreneurial behaviours, effectuation, causation, smallholder farmers; on-farm rural entrepreneurship, Africa

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3.1. Introduction

Rural landscapes and value chains in developing and emerging economies increasingly face complex issues such as food insecurity, poverty, bio-diversity loss and effects of climate change (Orr *et al.,* 2018; Le and Vo, 2021). In this context, there is a growing perception among scholars and practitioners that farmer entrepreneurship – which broadly refers to the process of effectively redeploying natural, financial, social and physical resources in and around farms to achieve benefits, reduce costs, or mitigate risks (Dias *et al*., 2019) – may not only play a role in addressing poverty, but also in coping with and adapting to socio-ecological shocks (Kangogo et al., 2021; Manyise & Dentoni, 2021). Despite this growing attention to farmer entrepreneurship, little research has been done on farmer entrepreneurial behaviours and how these support processes of coping and adapting with these shocks. Yet, evidence from outside the agricultural context suggests that the ability to cope and adapt to adversity in resource-constrained and environmentally uncertain settings relate to the level of entrepreneurial behaviours (Shirokova *et al.,* 2020).

Entrepreneurial behaviours refer to the observable actions in the process of gauging, combining and recombining resources to create value – be it social, economic and/or environmental (Gartner et al., 1992). Despite their relevance in supporting processes of coping and adaptation, a few studies have attempted to understand the entrepreneurial behaviours of smallholder farmers in developing and emerging economies (Rosairo and Potts, 2016; Yaseen *et al.,* 2018). Still, these studies are biased towards capturing intentions and attitudes of farmers, ignoring the actual entrepreneurial process. Emerging theory of entrepreneurship suggests that entrepreneurial process can be better studied using the lens of behavioural logics: *effectual behaviour,* which indicates non-predictive value creation led by means available in a given moment, and *causal behaviour,* which refers to predictive, goal-oriented value creation (Sarasvathy, 2001; Chandler *et al.,* 2011). Accordingly, extensive evidence, albeit outside farmer entrepreneurship shows that causation helps to break resource constraints in developing and emerging economies by ensuring effective management of scarce resources (Yu et al. (2018), whilst effectual behaviour allows fast adjustment to environmental changes as well as coping with resource constraints (Shirokova et al., 2020). Given the context in which farmer entrepreneurship takes place, one may argue that effectual and causal behaviours are important to navigate socio-ecological shocks and improve rural livelihoods.

However, literature shows that our knowledge of effectuation and causation entrepreneurial behaviours in rural contexts is scarce. To the best of our knowledge, no studies so far have sought to understand farmers' entrepreneurial behaviours in terms of effectuation and causation. Our current understanding is largely informed by studies from technologically advanced sectors and higher income western contexts that radically differ from the low-income agricultural sector in developing and emerging economies (Cala et al., 2015). Hence, to broaden our understanding of farmer entrepreneurial behaviours, this paper explores effectuation and causation behaviours among enterprising smallholder farmers in rural Zimbabwe and considers their implication on improving livelihood resilience, with the goal of developing typologies of entrepreneurial behaviours among farmers. Specifically, this study seeks to address the following questions:

- *What characterises smallholder farmer entrepreneurial behaviours from an effectuation and causation perspective*?
- *How can farmers be classified from an effectuation and causation behaviours perspective?*
- *Are there differences in individual attributes and performance outcomes between the identified entrepreneurial behaviours?'*

By developing a typology of entrepreneurial behaviours among enterprising farmers, we seek to organise diversity and build parsimonious frameworks that are important for future scholars in untangling entrepreneurial actions and predict the related drivers and outcomes (Chen et al., 2018). Future scholars may advance farmer entrepreneurship from an effectuation and causation perspective, and accordingly analyse which entrepreneurial behaviours are more important for smallholder farmers operating in resource constrained and turbulent rural contexts of developing and emerging economies. From a policy standpoint, an understanding of farmer entrepreneurial behaviour provides the foundation for designing effective rural development and resilience building programmes in the face of external changes. Supporting entrepreneurial behaviours among rural residents will enhance rural communities and regions' ability to withstand socio-ecological shocks, sustainably grow their local economies and improve their livelihoods (Šūmane *et al.,* 2018). Hence, this study provides insights for policies that seek to support adaptive and inclusive strategies for rural development and livelihoods resilience.

3.2. Theory

3.2.1. Farmer Entrepreneurship

Farmer entrepreneurship is still a relatively new concept, and an emerging field that has sparked considerable debate in recent years. However, farmer entrepreneurship is still challenging to define and describe. This is because of the lack of a prevailing definition of entrepreneurship: across the history of entrepreneurship, the extent to which activities of individuals are viewed as entrepreneurial is contested (McElwee, 2008; Fitz-Koch *et al.,* 2018). In the agricultural context, it is even more difficult because the agricultural sector has been overlooked in entrepreneurship studies over the years (McElwee, 2008), mainly due to the complexity of government regulation (Alsos *et al.,* 2011; Dias *et al.,* 2019) and support in most countries (de Wolf *et al.,* 2007).

As this is still an emerging field of study, we also still lack an established way to empirically verify which tangible and observable farmers' behaviours are associated and reflect different ways of 'doing entrepreneurship'. Extant literature have paid attention to the personality traits and skills of enterprising farmers (Alsos *et al.,* 2003; (Schiebel, 2005; McElwee, 2008; Vesala and Vesala, 2010; Niska *et al.,* 2012). Whilst such characterization was necessary to pave the way for entrepreneurship research in the agricultural sector, this has received considerable criticism, with scholars arguing that a focus on identifying who is an entrepreneur and who is not an entrepreneur limits our understanding of the drivers and consequences of entrepreneurship (Gartner, 1989; Shane and Venkataraman, 2000). These scholars argue that a behavioural or process-based perspective will be a more productive approach for future research in entrepreneurship, in order to see it as a process of gauging, combining and recombining resources to create value (Gartner et al., 1992). From a process perspective, farmer entrepreneurship can best be viewed as the process of effectively redeploying natural, financial, social and physical resources in and around farms to achieve benefits, reduce costs, or mitigate risks (Dias et al., 2019).

3.2.1.1. The Entrepreneurial Behaviour Dimension of Farmer Entrepreneurship

Farms are somehow miniature versions of ordinary firms, and their characteristics resemble the process of value creation found in any entrepreneurial organisation. Like any other business, farming is an entrepreneurial process that involves a process of gauging, combining and recombining resources (financial, human, physical, natural and social) to create value (Gartner

et al., 1992). In their entrepreneurial process, farmers have to search for new sources of inputs, experiment with new varieties and production methods, and create or discover new markets.

Early conceptualisations of farmer entrepreneurship suggest that all farmers running a commercial farm enterprise are entrepreneurs. For instance, in his conceptual work (McElwee, 2008) considered Gray's (2002) and views all entrepreneurial farmers as pursuing specific and clear goals, orienting themselves to the expansion of their business. In contrast, a process perspective would suggest that clear and strict goals are not always a distinguishing feature of entrepreneurial farmers, particularly in resource constrained and uncertain contexts. Instead, entrepreneurial farmer can be effectively identified by a series of actions during the start-up phase and in the running of a farm business. According to Sarasvathy (2001), this process perspective can be identified using the lens of *effectual* and *causal* behaviours.

Effectual behaviour refers to the use of non-predictive, proactive, emergent, flexible and experimentation strategies by entrepreneurial individuals to deal with the inherent uncertainties of the environment they operate (Sarasvathy, 2001). Due to this uncertainty, effectual actors find planning and forecast to be of little help; instead, they rely on decision-making heuristics that focus on what is at hand, controllable and what is affordable in terms of risk. As shown in Table 3.I, farmers displaying effectual behaviour engage in short-term experiments where the loss is affordable in the worst case scenario (Chandler et al., 2011). Whilst doing so, they build partnerships with other farmers, suppliers of input and buyers of their products to control the uncertainty. Through experimenting with available resources, they discover new methods, products and markets.

Alternatively, causal behaviour places emphasis on future predictions, strategic planning and the mobilising of resources to achieve 'strict' objectives. In this condition, entrepreneurial individuals combine the achievement of set objectives and profit maximisation with competitive analysis and the avoidance of surprises (Mintzberg, 1978; Sarasvathy, 2008). Causal behaviour entail the envisioning of goals, followed by resources mobilisation to meet the intended goals (Chandler et al., 2011). As shown in Table 3.I, farmers displaying causal behaviour focus on achieving strict farm targets and goals without delay. Along with a focus on strict farm targets and goals, causal-oriented farmers aim to maximise returns from their enterprises, (e.g., volume of farm sales, profits, etc.) and try to avoid surprises by having high inventories as well as looking for market information.

Table 3.1: A behavioural comparison of effectuation and causation in farm business

Dimension	Effectual behavioural characteristics	Causal behavioural characteristics
a. Means vs Goals	The farm business is driven by available means and resources	The farm business is driven by strict targets (e.g., volume of sales, output and capacity utilisation).
b. Affordable loss vs maximising returns	The farm business is guided by advanced commitments to what one is prepared to lose	The farm business approach is oriented towards maximisation of returns.
c. Alliances vs competitive market analysis	Uncertainty is reduced by building partnership and pre-commitments of self-selected stakeholders.	Uncertainty is identified and avoided through market and competition analysis and other means e.g., higher inventories
d. Leverage on contingencies vs avoid the unexpected	Contingencies/ surprises are a source of opportunities.	Contingences/ surprises are avoided or quickly overcome to reach given farm targets.

Source: Adapted from Sarasvathy (2008), Chandler et al. (2011) and Brettel et al. (2012).

Several studies have attempted to distinguish the two logics; whether they are two separate behavioural logics, or a continuum is still an ongoing debate (Eyana et al., 2017). Nevertheless, the majority of studies on effectuation and causation still view effectuation and causation as distinct behavioural logics (Sarasvathy, 2001; Chandler *et al.,* 2011). Accordingly, the operationalization of effectuation and causation can be viewed from four main dimensions (see Table 3.I for operationalisation in farm business). First, effectuation emphasises the creation of outcomes with existing means as opposed to causation, which starts with predefined project outcomes. Second, effectuation considers affordable loss, which refers to the risk of the worst-case scenario, as opposed to maximising returns in causation. Third, effectuation focusses on pre-commitments and building strategic alliances with self-selected stakeholders. Whereas effectuation focusses on building partnerships to control the future, causation practices competitive market analysis to reduce the effects of uncertainty. The fourth dimension of effectuation behaviour entails leveraging contingences, i.e., taking them as sources of opportunity, whilst causal behaviours would try to avoid surprises and risks. Despite this dichotomy, recent studies suggest that; depending on circumstances, in practice entrepreneurs may combine these behaviours (Smolka et al., 2018; Shirokova et al., 2020).

3.2.2. Socio-economic Characteristics and Farmer Entrepreneurship

Literature suggests that a better understanding of farmer entrepreneurship is complicated by the diversity in which farmers operate. Smallholder farmers are heterogenous (Chipfupa and Wale, 2018). They differ markedly in their socio-economic characteristics and the spatial context in

which entrepreneurial activities takes place (Grande et al., 2011). Whilst many studies tend to ignore this diversity in the analysis of farmer entrepreneurship, classification studies in the agricultural context have repeatedly demonstrated the importance of accounting for this diversity in policy formulations and programming (Goswami *et al.,* 2014).

3.2.2.1. Farmers Background Characteristics

Literature suggests that farmers' background characteristics, particularly gender (Hughes and Jennings, 2012; Yousafzai et al., 2015; Welter *et al.,* 2018), and education level matter for their entrepreneurship. Several studies demonstrate that gender differences affect access to resources (Powell and Eddleston, 2013). Asymmetric institutions in rural contexts treat men and women differently, with the former benefiting more than the latter in terms of access to resources and decision-making power (Pathak *et al.,* 2013; Van Staveren and Odebode (2007). Limited access to resources and decision making shape perceptions (Hmieleski and Sheppard, 2019), and therefore also entrepreneurial actions (Gupta *et al.,* 2019; Yang *et al.,* 2020). Equally, one's education level not only enhances managerial capabilities but also generates broader entrepreneurial options (Jiménez et al., 2015). Consistent evidence suggest that education broadens the entrepreneurial activities of farmers (Mojo *et al.,* 2017) and market participation (Randela et al., 2008). Given the consistent evidence, suffice it to say that smallholder farmer's entrepreneurial behaviours are associated with their background characteristics.

3.2.2.2. Resource Configurations

Several studies on entrepreneurship show that entrepreneurial behaviour is tied to one's resources. Research on farmer entrepreneurship have extensively debated the role of social networks (Grande et al., 2011) and property resources (Barbieri and Mshenga, 2008), in particular. Grande et al. (2011) argued that social networks are important for rural farm business owners due to their less favourable geographical locations, where access to information is limited. By being socially connected through friends or being a member of a producer organization, a farmer is kept updated with new information, technology trends and methods of production (Scott and Richardson, 2021). Several studies demonstrate that social networks facilitate knowledge exchange, social support and collaboration (Andreatta and Wickliffe, 2002; Spielman *et al.,* 2011; Hightower et al., 2013). Equally, farm size has been considered a property resource that influence entrepreneurial behaviour (Barbieri and Mshenga, 2008; Yeboah et al., 2020). For instance, several studies in sub-Saharan Africa show that farm size is one of the major limitations on commercialising production, mainly due the perceived negative

trade-offs between commercial cropping and food cropping on household food security (Anderman *et al.,* 2014). Barbieri and Mshenga (2008) show that a larger farm size facilitates experimentation with different cropping varieties. Accordingly, one may argue that the larger the farm size, the better access the farmer has to a combination of technological packages on the land and can also better plan for longer-term investments (Morris *et al.,* 2017).

3.2.2.3. Spatial Context

Many studies suggest that the geographical location, particularly distance to markets and support services, in which entrepreneurial activities takes place is an important factor for farmer entrepreneurship (Bortamuly *et al.*, 2014; Korsgaard and Tanvig, 2015). As argued by Grande et al. (2011), farms located closer to the market may have location-specific advantages compared to farms located far from the market. By being closer to the market, not only are the information exchange benefits from market participation high (Hinrichs et al., 2004), but search and information transaction costs are also minimized. Of course with the advances in communication methods, the relevance of location may be varied (Grande *et al.,* 2011). However, considering this may not be true for smallholder farmers in rural parts of Africa where infrastructure is poor and internet access is limited (Ochieng et al., 2020), it may still be argued that farmers located closer to the market may exercise higher levels of entrepreneurial behaviour compared to their distant farmer counterparts.

3.3. Methods

3.3.1. Enterprising Smallholder Farmers in Rural Areas as Context

In exploring farm entrepreneurial behaviours in a resource-constrained and turbulent rural context, this study draws on smallholder farmers in the Zimbabwean seed systems. In which case, smallholder farmers engage in entrepreneurial behaviours as they enter a seed multiplication business initiative that is gaining relevance in sub-Saharan Africa (McGuire & Sperling, 2016). Like in many other African countries, the Zimbabwean seed-multiplication sector was previously dominated by large-scale commercial farmers due to regulations that tended to marginalise smallholder farmers. With sector reforms in the past decade and the need to link smallholder farmers to markets, the agricultural sector has opened a window of opportunity for farmers to become producers of certified seeds under the Ministry of Agriculture (Genesis Analytics, 2018). Whilst farmers participate in these business initiatives to meet their basic needs, they are called to act entrepreneurially in planning and adapting their use of resources, because both on a seasonal and an everyday basis, they face uncertainty due

to climate change, fluctuating commodity prices and inflation. Specifically, this study was conducted among enterprising smallholder farmers located in seven wards of the four rural districts (Masvingo, Zaka, Gutu and Bikita) of Masvingo Province. Because most of the farmers in this province are resource poor, lack a formal job and derive their income from farming, agriculture is considered the main livelihood strategy among majority households.

3.3.2. Study Sample and Data Collection

This study relies on survey data collected between January and February 2020. Together with trained enumerators, the first author administered a questionnaire to a multi-stage random sample of 430 smallholders who had started their farm business during the previous four years. However, because of the nature of our research question extending effectuation and causation to the novel setting of farm business, we first conducted semi-structured interviews with 35 purposively selected smallholder farmers. These interviews were for the purpose of gaining a deeper understanding of entrepreneurial activities and processes in the farm business sector in order to help adapt the measuring scales of effectual and causal behaviours (Chandler et al., 2011) to the farm business context. The typical measuring scale for effectual behaviour involves a 11-item questionnaire capturing four dimensions, viz, experimentation, affordable loss, flexibility and precommitments, while the scale measuring causal behaviour involves nine items and is considered a unidimensional scale. These items are measured on a five-point Likert scale ('strongly agree' to 'strongly disagree').

The generated insights from the interviews were used to adapt effectuation and causation item questions to the context of enterprising smallholder farmers. In doing so, we contextualised the question wording to the farm context. For example, we changed 'we' to 'I'. We also elaborated questions by giving examples. For instance, while Chandler et al. 's (2011) scale reads *'When we started our business we adapted what we were doing to the resources we had'*, the adapted scale reads '*When I started my farm enterprise, I adapted my farm activities to the available resources (e.g. skills, finance, land*)'. Given the process perspective of this study, it was important that we restrict the behaviours to the first three years of establishing a farm business. This was also important to manage retrospective sensemaking and reduce bias.

Table 3.2: Socio-economic characteristics of respondents

Variable		Rupike	Chipinda	Bvukuru	Panganai	Chikarudzo	Bikita	Gutu	Statistic
Sample size	(*n*)	77	74	51	72	32	51	66	
Sex	Female	59.7	51.4	49.0	47.2	56.3	29.4	39.4	
	Male	40.3	48.6	51.0	52.8	43.8	70.6	60.6	14.511**
Education	≤ Secondary	46.8	47.3	43.1	50.0	34.4	43.1	42.4	
	> Secondary	53.2	52.7	56.9	50.0	65.6	56.9	57.6	2.760
Age		57.57(10.84)	54.30(11.30)	58.02(11.14)	54.60(8.74)	57.25(13.18)	55.60(12.60)	56.71(11.2)	1.126
Household size		5.08(1.82)	6.09(1.61)	6.12(2.29)	7.34(2.58)	5.94(1.64)	7.10(2.14)	6.15(2.12)	9.143***
Total owned farm size		3.43(1.66)	3.34(3.32)	2.53(1.07)	2.68(0.82)	1.41(0.66)	5.00(1.23)	2.31(1.24	36.740***
Farm size under business use		0.52(0.13)	0.61(0.28)	0.47(0.29)	1.43(0.51)	0.54(0.12)	0.98(0.78)	1.01(0.35	84.399***
Distance to the market		1.79(0.84)	11.22(1.17)	7.62(0.60)	4.24(1.74)	8.21(3.41)	6.81(2.05)	5.95(2.34	204.140***
Friends in farm business		2.81(1.18)	1.0(0.12)	1.02(0.14)	1.90(1.23)	1.81(1.18)	2.02(0.14)	1.26(2.14)	56.818***
Three year- average seasonal seed sales (tonnes)		1029.22(305.66)	686.22(305.0)	777.43(274.41)	650.76(261.56)	520.44(218.14)	914.90(325.41)	397.50(273.99)	36.590***
Three year- average seasonal farm income US$		1087.33(360.76)	742.31(337.49)	709.03(247.67)	638.81(393.16)	631.88(425.35)	989.84(260.66)	487.33(360.76)	10.708***

Notes: Mean (standard deviation) values are reported for continuous variables. Welch's ANOVA F statistic is reported for numerical variables; Significant at the 10% level; **significant at the 5% level; ***significant at the 1% level. Percentage distribution is reported for categorical variables. Chi-square statistic is reported for categorical variables.

We then pretested the questionnaire among 15 enterprising smallholder farmers in different locations to check for question complexity, vagueness and misunderstandings. Second, the refined questionnaire covering demographic variables, economic variables (resources), farm performance (seasonal farm sales, annual farm income) and effectuation/causation was administered to a sample of 430 enterprising smallholder farmers. The sample was selected using a multi-stage random sampling technique; first stratified by location, and second, a systematic random sampling within that location. The response rate was 98%. Table 3.2 shows the sample characteristics of the respondents.

3.3.3. Measurement of Variables Used in the Analysis

Entrepreneurial behaviour - In exploring effectuation and causation among enterprising farmers, following Chandler et al.'s (2011) operationalisation of effectuation and causation, this paper considers causation as a unidimensional construct and effectuation as a multidimensional construct comprising precommitments, affordable loss, experimentation and flexibility elements. In order to validate the constructs used for the cluster membership allocation, we performed an exploratory factor analysis: a multivariate statistical technique where observable variables are reduced to a few latent variables that have a common variance structure with the measured variables. In this study, we draw from the items developed by Chandler et al. (2011). Exploratory factor analysis in SPSS ver. 25 was conducted, since this is one of the first studies to explore effectuation and causation to the agriculture sector, let alone in an African context. We first conducted convergent validity tests for effectuation and causation elements. The factorability of the data was assessed using Kaiser-Mayer-Olkin (KMO)'s measure of sampling adequacy and Bartlett's test of sphericity. Consistent with the cut-off values, both KMO's and Bartlett's tests proved that that data was suitable for the factor analysis (KMO > 0.5; Bartlett test: $\rho < 0.05$) (Hair et al., 2010). To simplify the factor solution and assist interpretation, we used varimax rotation. During this stage, we noted that some of the items had low loadings, and hence excluded them from the analysis. Items on precommitments were cross-loading, failing discriminant validity, and thus also had to be removed from the analysis. Ultimately, this analytical stage retained four discriminating factors (behaviours), namely, *causation* with eight items, *experimentation* with four items, *flexibility* with three items and *affordable loss* with two items. We checked the reliability and internal consistence of the retained effectuation and causation question items using the Cronbach's alpha and the scales proved to be internally consistent ($\alpha > 0.7$). Table 3.3 shows a summary of the assessments that proved that the data was suitable for the analyses.

Table 3.3: Constructs used in the analysis

Factor	Items	Factor loadings	Statistics and Tests	Previous studies
Causation	Avoiding surprises	0.897		Chandler et al., 2011
	Use of formalised strategies	0.875	Mean (s.dev) = 24.9(10.10)	
	Activities to reach farm targets	0.876	Cronbach alpha = 0.983	
	Focus on farm enterprise potential returns	0.880	Factor = 1	
	Profit calculations of farm enterprise	0.886	Explained variance = 89.69%	
	Identifying farm risks	0.873	KMO = 0.958	
	Farm business planning	0.876	Batlet test = 5570.25***	
	Laying of farm business goals	0.894		
Experimentation	Trying a number of inputs	0.928	Mean (s.dev) = 11.78(5.12	Chandler et al., 2011
	Allowing production methods to evolve	0.909	Cronbach alpha = 0.815	
	Experiment with different methods	0.946	Factor = 1	
	Trying with available resources	0.926	Explained variance = 71.89%	
			KMO = 0.786	
			Bartlet test = 1777.870***	
Flexibility	Adapting farm activities	0.957	Mean (s.dev) = 8.86(4.06)	Chandler et al., 2011
	Avoiding activities that limit flexibility	0.959	Cronbach = 0.938	
	Taking advantage of new opportunities	0.918	Factor =1	
			Explained Variance = 89.23	
			KMO = 0.746	
			Bartlett's test = 1199.99***	
Affordable loss	Focus on what the farmer is willing to lose	0.849	Mean (s.dev) = 5.74(2.77)	Chandler et al., 2011
	Focus on minimum potential risk	0.849	Cronbach alpha = 0.823	
			Factor = 1	
			Explained variance = 84.18%	
			KMO = 0.599	
			Bartlet test = 281.698***	

Source: Authors calculation in SPSS ver.25.

Based on the minimum eigenvalue of 1 Kaiser criteria, each of the tests suggested one factor with more than 80% of the explained variance. All the items in each of the four behaviours (causation, experimentation, flexibility and affordable loss) proved to be internally consistent ($\alpha > 0.7$). Following the established practice (Shirokova *et al.,* 2020), we then took the total scores of the items of each factor retained from exploratory factor analysis (causation = 8 items, experimentation = 4 items, affordable loss = 3 items and flexibility = 2 items).

Socio-economic and performance variables - In comparing the characteristics associated with each cluster, we considered gender, education level, farm size, distance to the market, number of friends who own a farm business, and farm performance. These variables have been shown to be associated with entrepreneurship in the agriculture sector (Grande *et al*., 2011). Gender was measured as a binary variable (1 = Male and 0 =Female). Education level was measured with a scale ranging from 0 (no school) to 7 (bachelor's degree). This variable was converted to a binary variable where 0 = less than secondary and 1 = at least secondary school. Farm size, which refers to the size of land (owned under farm business), was measured in hectares (ha). Distance to the market, which refers to how far the farm is located to the central market/collection point, was measured in kilometres (km). To measure the social connectedness of the farmer, drawing from social network literature, we used the number of friends who own a farm business. Finally, farm performance was measured using two variables: three-year average market sales measured in kilogrammes (kg) and three-year average farm income.

3.3.4. Data Analysis

3.3.4.1. Cluster Analysis

To explore the entrepreneurial behaviours among smallholder enterprising farmers, we use Cluster analysis, which is a typology construction and classification technique developed for group observation; it groups cases together based on their similarities to each other with regards to certain observable variables (Hair et al., 2010). This technique has gained relevance in recent years, especially in emerging areas of entrepreneurship research such as taxonomic studies (Crum et al., 2020; Morris et al., 2017). Specifically, this study employed a two-step cluster analytical approach to explore entrepreneurial behaviours in terms of effectuation and causation among enterprising smallholder farmers.

Two-step cluster analysis is a modified form of hierarchical clustering. It involves a pre-clustering phase that first uses a distance measure to separate groups into many small sub-clusters before the actual clustering is performed by subsuming the sub-clusters in to larger

clusters using agglomeration (Crum et al., 2020). This approach is preferred for three reasons: first, because it can handle a large data set that will take time to compute with hierarchical cluster method; second, because it can handle both categorical and numerical data, which is not possible with partitioning methods such as k-means; and third, because it is possible to automatically determine the optimal number of clusters based on Schwarz Bayesian Information Criterion (BIC) or Akaike Information Criterion (AIC) (Şchiopu, 2010; Crum *et al.,* 2020) compared to hierarchical-based dendrograms, which become progressively harder to interpret as more cases are added.

3.3.4.2. Cluster Validation

A crucial step in cluster analysis is the effort to validate and determine the reliability of the cluster solution (Crum *et al.,* 2020). Several studies have used analysis of variance (ANOVA) to examine statistical differences on input variables (Borch *et al.,* 1999). In this study we examine the statistical differences in causation, experimentation, affordable loss and flexibility among the clusters. Using ANOVA and Pearson's chi-square test, we also examined the demographic and socio-economic characteristics of the clusters. Finally, we evaluated the performance in terms of the farmer's seasonal sales and farm income in each cluster.

3.4. Empirical Findings

3.4.1. Typology of Entrepreneurial Behaviour Among Enterprising Farmers

A two-step cluster analysis identified four distinct clusters, which, in our view, provides a nuanced and accurate description of the heterogeneity among enterprising smallholders farmers. An analysis of coherence and separation shows that the clusters meet the quality thresholds (see appendix B). The ratio size between the smallest and highest clusters is 1.56, validating the comparability of the identified clusters. Validated by the ANOVA, the four clusters displayed statistically significant differences for all the entrepreneurial behaviour variables, with low within-cluster standard deviations from the mean ($\rho < 0.005$, $F = 7.92 \rightarrow 3021{,}62$). Table 3.4 shows the identified clusters and the number of smallholders on-farm business owners in each cluster.

In order to identify the differences between clusters, each of the behavioural variables' (causation, affordable loss, flexibility and experimentation) average score is compared in the four clusters. We also present summary statistics of the identified clusters based on socio-economic characteristics of on-farm business owners. We describe the clusters as follows.

Table 3.4: Comparison of cluster characteristics

Variable	Cluster A: Goal-driven farmers	Cluster B: Non-entrepreneurial farmers	Cluster C: Means-driven farmers	Cluster D: Ambidextrous farmers	F/Chi-statistic
Cluster size (N = 423)	104	139	91	89	
Entrepreneurial behaviour					
Causation	34.13 (2.71)^{abc}	13.94(1.41)^{bad}	14.10(.216)^{cad}	37.07(.240)^{dbc}	3021.62***
Effectuation	13.88(1.43)^{acd}	13.87(1.32)^{bcd}	34.60(1.96)^{cab}	34.61(2.17)^{dab}	3021.62***
Affordable loss	3.96(0.84)^{abcd}	3.71(0.74)^{bacd}	8.04(1.06)^{cabd}	9.15(0.89)^{dabc}	592.16***
Experimentation	5.77(1.29)^{acd}	5.91(1.32)^{bcd}	18.85(2.10)^{cabd}	17.48(2.83)^{dabc}	1452.42***
Flexibility	4.15(1.00)^{acd}	4.26(1.07)^{bcd}	7.71(1.06)^{cab}	7.98(0.89)^{dab}	7.98***
Socio-economic characteristics					
Sex of the farmer: Female	43.19	62.59	57.14	46.07	
: Male	54.81	37.41	42.86	53.93	11.352**
Farm location Rupike	23.4	14.3	19.5	42.9	
Bvukuru	23.0	41.9	16.2	18.9	
Chipinda	19.6	17.6	29.4	33.3	
Panganai	41.7	30.6	12.5	15.3	
Chikarudzo	28.1	40.6	25.0	6.3	
Bikita	19.6	17.6	29.4	33.3	
Gutu	15.2	63.6	15.2	6.1	98.724***
Total land size (ha)	2.83(1.46)^{ad}	2.63(1.41)^{bd}	2.99(3.32)^{cb}	3.35(1.64)^{db}	2.646**
Land under business use (ha)	0.86 (0.48)	0.72(0.41)^{bd}	0.76(0.43)	0.88(0.49)^{db}	3.131**
Distance to the market (km)	6.61(3.51)^{ad}	7.12(3.38)^{bd}	6.34(3.27)^{cd}	4.27(3.70)^{dabc}	64.241**
Friends owning farm business	2.11(1.70)^{abc}	1.35(1.48)^{ba}	2.60(1.22)^{ca}	3.19(1.47)	5.523***
Age of the farmer	58.06(10.39)^{abd}	54.54(10.92)^{bac}	58.81(11.14)^{cbd}	53.72(11.53)^{dac}	2.646**
Education level: Less than secondary	42.0	64.75	42.64	41.57	
:More than secondary	58.0	35.25	57.36	58.43	21.992***

Values are mean (standard deviation) for continuous variables. Percentage distribution is reported for categorical variables. ANOVA F values reported for continuous variable. ^{abcd}Scheffe post-hoc is reported for entrepreneurial behaviours. Chi-square value reported for categorical variables. Within row, values marked with the same superscript letter are statistically different. .*, *** denotes statistical significance at 1, and 10% levels, respectively.

Non-entrepreneurial farmers (n=139). The majority of this cluster comprises smallholder farmers characterised by lower levels of causation and effectuation-related behaviours. Farmers in this cluster display low levels of experimentation, flexibility and place less emphasis on affordable loss in their farm enterprising process. These farmers have an average age of 54 years, and the majority of them (62%) are women. This cluster is characterised by smaller farms (2.63 *ha*) and smaller farm plots under business use (0.72 *ha*), which are located longer distances from the market (7.12 *km*). In addition, the majority of the farmers in this cluster (63%) are women who have not attained a secondary education level. The farmers in this group have fewer friends who own a farm business compared to farmers in other clusters. Overall, farmers in this cluster have low entrepreneurial behaviours in their farm enterprising process. The majority farmers located in Chikarudzo, Bvukuru and Gutu are in this cluster.

Goal-driven farmers (n = 104). This is the second largest cluster, with farmers displaying predominantly causal behaviours in their farm enterprising process. This cluster is characterised by lower levels of experimentation, flexibility behaviours, and less emphasis on affordable loss, but with the highest levels of causation behaviours. Farmers in this cluster have an average age of 58 years, and about 55% of them are male. In addition, more than half of this cluster have more than secondary education. They have larger farms located closer to the market compared to non-entrepreneurial farmers. A larger part of their farms – about 0.86*ha* – is under farm business use. Interestingly, farmers in this cluster have by far the largest number of friends who own a farm business. A considerable proportion of the farmers in Panganai are in this cluster.

Means-driven farmers (n = 91). Farmers in this cluster are characterised by high levels of effectuation. Compared to non-entrepreneurial and causal-oriented farmers, this cluster has higher levels of experimentation, affordable loss and flexibility behaviours. They have relatively lower levels of causation. More intriguing about this cluster is that it is dominated by female farmers, and has older farmers, most of them lacking secondary education. These farmers are relatively more connected, with more than one friend who owns a farm business, compared to non-entrepreneurial farmers. In addition, farmers in this cluster have larger farm sizes of about 3*ha* but use only about 0.76 *ha* for their farm business. Their farms are located relatively closer to the market compared to non-entrepreneurial farmers. A considerable proportion of farmers in Bikita and Chipinda is this cluster.

Ambidextrous farmers (n = 89). This cluster is the smallest, and farmers in this cluster display high levels of both causation and effectuation behaviours ($p < 0.05$). The majority of these farmers are men with more than secondary education. These farmers are significantly younger

compared to causal and effectual-oriented farmers ($p < 0.05$) and have an average of two friends who own a farm business. An interesting feature of this cluster is that it is composed of farmers who possess by far the largest farm sizes (3.35 ha) and farm plots under business use (0.88 ha) compared to farmers in the other three clusters. These farmers are located closer to the market. The majority of the farmers in Bikita and Rupike are in this cluster.

3.4.2. Validation of the Four-cluster Solution

As an important step of cluster analysis, we performed a validity test among the clusters by relating the cluster structures to farm performance. Because farm performance may be multi-dimensional and complex to assess, we resorted to annual farm income (US$) and season sales (kilogrammes). The Welch's ANOVA test of the validating variables is summarised in Table 3.5. From the displayed results, there is a statistically significant difference in both annual farm income and seasonal sales between the clusters ($\rho < 0.05$).

Table 3.5: Validating variables

	Farm income per season (USD)	Sales per season (kilogrammes)
Causal-oriented farmers[a]	807.98(182.16)[abcd]	783.30(113.97)[abd]
Non-entrepreneurial farmers[b]	463.64(424.17)[bacd]	312.60(108.43)[bacd]
Effectual- oriented farmers[c]	727.04(251.19)[cabd]	794.58(81.23)[cbd]
Ambidextrous farmers[d]	1201.15(231.60)[dabc]	1223.17(155.18)[abcd]
F-value	64.137***	1145.31***

Values are mean (standard deviation). Welch ANOVA F values reported. [abcd]Scheffe post-hoc is reported for entrepreneurial behaviours. Within row, values marked with the same superscript letter are statistically different. . *, *** denotes statistical significance at 1, and 10% levels, respectively.

Interestingly, non-entrepreneurial farmers had significantly lower income and sales than other clusters, which illustrates the negative implications of low entrepreneurial behaviour among farmers. On the other hand, ambidextrous farmers had a statistically higher farm income and sales per season than all other farmers ($\rho < 0.05$). An intriguing finding is that farmers who are either predominantly effectual *or* causal had statistically lower farm income and sales than ambidextrous farmers. This finding suggests that the joint enactment of both causal and effectual behaviours is important for achieving higher farm performance.

3.5. Discussion

Findings of this study show that smallholder farmers are not only heterogenous in their entrepreneurial behaviours, but also in their demographics, education level, farm size, distance

to the market, social connectedness and farm performance. This section will briefly discuss these seven key points.

First, findings of this study touches upon our understanding of entrepreneurial behaviour in resource-constrained and turbulent rural contexts of developing and emerging economies. As smallholder farmers located in volatile contexts face extreme climate shocks, fluctuating commodity prices and changing consumer tastes, entrepreneurial behaviour becomes a distinguishing feature of successful and resilient farmers (D'Andria *et al.,* 2018). Despite this acknowledgement, few studies have attempted to understand entrepreneurial behaviours in rural contexts of developing and emerging economies (Rosairo and Potts, 2016; Yaseen et al., 2018), yet without capturing the variety of actions that enterprising smallholder farmers use to manage resource constraints and navigate environmental uncertainty (Shirokova et al., 2020). Relative to these prior studies, this present study explores entrepreneurial behaviours among smallholder farmers in a resource constrained and turbulent rural Zimbabwean context and identifies four uniquely distinct clusters which differ in their levels of causal behaviour, and effectual-related behaviours; viz, experimentation, flexibility and affordable loss. Based on the related literature, the authors' conceptualisation and empirical evidence, the clusters are identified as follows; non-entrepreneurial, goal-driven, means-driven and ambidextrous. Given that farmer entrepreneurial behaviour is an under-researched area of study, we believe that this typology lays a foundation in studying farmer entrepreneurship from a process perspective and predict its drivers and outcomes. These clusters also show statistically significant differences in other variables that are relevant for both theory development and policy formulation.

Second, along with their differences in entrepreneurial behaviours, the identified clusters differ from each other by gender in terms of the sex of the enterprising smallholder farmer. Previous studies have shown that women face many challenges in their business compared to their male counterparts, mainly associated with limited access to resources and business information (Welter *et al.,* 2018). As a result of these challenges, many mistakenly viewed female business owners as less entrepreneurial than their male counterparts (Ahl, 2006). In developing and emerging economy contexts, as in most of rural Africa where female-owned businesses were historically perceived as secondary, with women occupying lower positions in entrepreneurial environments, gender becomes an important factor to understand entrepreneurship exclusion. Results in this present study demonstrate a large proportion of female farmers displaying non-entrepreneurial behaviours. Conversely, a larger proportion of farmers displaying ambidextrous behaviours are male farmers. This finding corroborates previous studies highlighting the

gendered challenges where female rural entrepreneurs are shown to have less access to resources, information and other support services important for entrepreneurial behaviour (Welter *et al.,* 2018).

Third, the four-cluster solution identified in this study shows that location is an important differentiating factor. Extant literature shows that distance to the market affects market participation and increases information and search costs (Grande et al., 2011). Similarly, the spatial contexts in which entrepreneurship takes place constrain entrepreneurship in many ways. In low-income contexts this is exacerbated by poor or underdeveloped transport and communication infrastructure. Consistent with this viewpoint, results in this present study show that high levels of entrepreneurial behaviour were associated with farmers located closer to the market while non-entrepreneurial behaviours or predominance of causal and effectual behaviours were associated with farmers located longer distances from the market. Relatedly, both farmers in Rupike and Bikita, where anecdotal evidence suggests that infrastructure is better in terms of irrigation, roads, etc., display ambidextrous entrepreneurial behaviours, whilst a larger proportion of farmers in Gutu, Chikarudzo and Bvukuru – with poor infrastructure facilities – are predominantly in the non-entrepreneurial behaviour cluster. Given these results one may argue that longer distances from the market limit market participation; farmers in that situation have less access to knowledge, which may constrain their entrepreneurial behaviour. This is further hampered by the poor state of rural infrastructure. As a result, farmers distant from the market have more entrepreneurial disadvantages compared to their counterparts close to the market – hence the need for establishing more local markets as well as for the maintenance of infrastructure.

Fourth, farm size is shown to be significantly different between the identified clusters. Literature shows that larger farm sizes are important for pluri-activity (Carter & Rosa, 1998), experimentation and planning for longer investments (Barbieri & Mshenga, 2008). Results of this present study demonstrate that farmers with higher levels of entrepreneurial behaviours are associated with access to larger farms: farmers with higher levels of entrepreneurial behaviours were associated with having a larger plot under business use. This finding corroborates previous arguments that large farms facilitate economies of scale (Morris *et al.,* 2017). This present study further demonstrates that even in smallholder context, the difference in farm size is important for entrepreneurial behaviours. Given how small farms are due to land fragmentation policies in most of sub-Saharan Africa (Hakizimana *et al.,* 2017), it is important that farmers allocate a

larger proportion of their small farms to farm business, because the benefits of entrepreneurial behaviours are evident.

Fifth, the social connectedness of the farmer is shown to be different between the identified clusters. Previous research suggests that farmer-to-farmer connections not only facilitate the sharing of resources necessary for entrepreneurial activities but also the exchange of entrepreneurial knowledge (Scott and Richardson, 2021). Similarly, this present study found that farmers with higher levels of entrepreneurial behaviour have more friends who have a farm business. This finding corroborates with Bandiera and Rasul, (2006) and Spielman et al. (2011), who all found that dense social networks among farmers play an important role in farmer entrepreneurship and innovation. Whilst previous studies provide insights into the nature of entrepreneurial networks (Witt, 2004), this present study demonstrates that having more friends who own a farm business is associated with higher levels of start-up entrepreneurial behaviours among smallholder farmers. In the context of smallholder farmers in low-income markets, where social networks are absent or weak, horizontal networks such as farmer-to-farmer networks become important for information sharing and entrepreneurial learning.

Sixth, the results of this study show consistent patterns in levels of education associated with each of the identified clusters. Extant literature suggests that education is a human capital that enhances managerial capabilities and entrepreneurial decision making (Jiménez *et al.,* 2015). In the agricultural sector of low-income markets, education level had been associated with pluri-activity and market participation (Mojo *et al.,* 2017). Our cluster analysis showed that education levels differ with each entrepreneurial behaviour cluster, with a higher proportion of individuals with higher levels of education being in clusters characterised by higher levels of entrepreneurial behaviour. Conversely, the majority of farmers in the non-entrepreneurial behaviour cluster had not attained secondary education. Given this finding, one may argue that education provision is important for smallholder farmers operating in resource constrained and turbulent rural contexts of developing and emerging economies.

Finally, according to the results obtained, the entrepreneurial behaviour profiles differ in their farm performance outcomes. Previous studies have demonstrated the performance implication of process-based entrepreneurial behaviours in volatile contexts, albeit not specifically for farmer entrepreneurship (Shirokova *et al.,* 2020). Whilst the four-cluster solution in this study is not implying any form of causality between entrepreneurial behaviour and performance, it shows significantly different volume of sales and farm income between clusters. Juxtaposing with previous studies, effectual behaviours help farmers in times of high uncertainty through

the experimentation with their own means – which the farms can afford to lose – whilst causal behaviours facilitate aligning priorities with the expectations of other stakeholders, especially in value chain partnerships. Whilst this finding is inconclusive, given the volatility in the African farm context, therefore, entrepreneurship development programmes should seek to promote both causal *and* effectual behaviours.

3.6. Policy and Managerial Implications

From a policy standpoint, supporting entrepreneurship among rural residents will provide rural communities and regions with the ability to withstand socio-economic and ecological shocks, sustainably grow their local economy; and improve their livelihoods (Šūmane *et al.,* 2018). Beyond this, specific policy focus is needed in areas of entrepreneurship education, adult literacy, access to resources, market access and infrastructure development. For areas with farmers displaying non-entrepreneurial behaviours, policies should focus on reducing farmers' distance to the market. This can be done through improving roads and communication networks or revitalising or establishing rural growth centres. This should be coupled with policies that support adult literacy programmes, business schools, farmer field schools and entrepreneurship education programmes. Success from other developing and emerging economies in Asia (Pratiwi and Suzuki, 2017) and Africa (Davis et al., 2008; Lourenço *et al.*, 2014) show that building the skills for farmers through entrepreneurship training programmes has multiple benefits for farmers. This group of farmers could also benefit from policies that support programmes strengthening the social connections among farmers. These programmes could be through facilitating social interactions by supporting farmer field days or strengthening the functioning of farmer cooperatives. Evidence shows that facilitating social interactions will ensure knowledge exchange, which is important for farm business (de Mel et al., 2014) .

From a managerial standpoint, we believe that this study provides valuable insights for decision makers, extension advisory services, farmer field schools and NGOs in their efforts to design entrepreneurship programmes to support rural development and livelihood resilience programmes in the face of external changes. By demonstrating the background, resource and spatial characteristics associated with different entrepreneurial behaviours among smallholder farmers, this study highlights the need to design programmes that accounts for the heterogeneity among farmers. This means that entrepreneurship training or support programmes should be tailored to the situation of the farmers concerned. For instance, for means-oriented farmers who may be struggling with managing scarce resources, training programmes could be oriented towards key farm management activities such as planning, budgeting, profit calculations, risk

analysis, etc. This could also be coupled with providing financial resources for collective investments. Evidence from Sri Lanka shows that business trainings and small grants are effective in changing business practices for entrepreneurs in a resource constrained and turbulent rural context (de Mel et al., 2014). On the other hand, for goal-driven farmers, who may be struggling with navigating and adapting to the turbulence in the face of socio-ecological shocks, support programmes could be towards fostering trust relationships among farmers and between farmers and their buyers and suppliers. This could also be supported by providing effectuation content-specific extension advisory services through reading manuals or expert services. Altogether, these programmes should account for gender differences, access to land, education level, access to markets and social connections.

3.7. Conclusion

This paper explores entrepreneurial behaviours among smallholder farmers entering seed-multiplication business initiatives that are gaining popularity as a farmer commercialization strategy in sub-Saharan Africa. Using survey data from 423 enterprising smallholder farmers in rural Zimbabwe, four uniquely different entrepreneurial behaviours among enterprising farmers were identified: non-entrepreneurial, means-driven, goal-driven and ambidextrous. Results of this study suggests that policy and programmes that seek to support enterprise development for livelihoods and resilience building among smallholder farmers should account for the heterogeneity among farmers. The typology of entrepreneurial behaviours proposed in this study could be a starting point of a discussion on how to improve livelihoods and resilience by fostering farmer entrepreneurial behaviours in volatile farming contexts. While this study provides a foundation for understanding entrepreneurial behaviours from a process perspective, it does have several limitations: the lack of information on the influence of other stakeholders such as farmer associations or private company partners, and its focus on one type of business, which makes the results less generalizable. Future work is required to analyse these entrepreneurial behaviours across different farm businesses, how they develop or shift over time, and how the rural context in which smallholder farmers are embedded may influence their development.

Chapter 4

Space to Learn? How Strategic Alliances Shape Necessity Entrepreneurs' Causation, Effectuation And Livelihood Resilience

Abstract

Strategic alliances involving necessity entrepreneurs are common worldwide. However, we know little about how they create (or destroy) value in supporting (or hampering) necessity entrepreneurs' human capital development needed to improve their livelihood resilience. By comparing partnerships between local firms and small farmers in Zimbabwe, we analyse how strategic alliances shape necessity entrepreneurs' behaviours and their livelihood resilience. The emerging framework reveals how three alliance governance mechanisms shape necessity entrepreneurs' causation and effectuation over time: intensity of resource pooling, distribution of decision-making rights, and formality of coordination mechanisms. In turn, the combination of necessity entrepreneurs' causation and effectuation supports livelihood resilience. These findings improve our understanding of value creation processes in strategic alliances, organizational antecedents of causation and effectuation, and necessity entrepreneurs' human capital development.

Keywords: necessity entrepreneurship; strategic alliances; entrepreneurial learning; Africa; agriculture.

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4.1. Introduction

Necessity entrepreneurs, commonly defined as people creating new ventures to fulfil and preserve their basic physiological or safety needs (Dencker et al., 2021), frequently engage in strategic alliances, especially in primary (e.g., agriculture, fishing or forestry) and secondary (e.g., textiles, construction or small-scale food production) industries worldwide (GEM, 2021). Just in the agricultural sector, for example, small farmers[1] with land plots under two hectares – which occupy 24% of the global arable land and produce 32% of the world's food supply (Ricciardi et al., 2018) – sell between 30% to 90% of their produce by engaging in strategic alliances with buyers (World Bank, 2018). Somewhat paradoxically, though, many still live under a daily income of 2 dollars/day (Fan & Rue, 2020), are food insecure (WFP, 2021), and constantly seek new business out of necessity (FAO, 2015). While necessity entrepreneurs rely on strategic alliances for their livelihood resilience – i.e., 'the capacity […] to sustain and improve their […] well-being despite environmental, economic, social and political disturbances' (Tanner et al., 2015:23) – we know relatively little about how these alliances shape their human capital development, which is needed to sustain their resilience over time.

Necessity entrepreneurs' engagement in strategic alliances often stems from a reciprocal dependency with their allies. For example, necessity entrepreneurs like smallholder farmers provide their buyers with a stable supply of raw materials and natural resources in increasingly volatile markets (IFC, 2019). In exchange, they receive financial, technological and knowledge resources (Moss et al., 2021) to develop their business and strengthen their means of subsistence (Tobias et al., 2013). While their strategic allies might exercise market power and even exploit them (Crane, 2013), necessity entrepreneurs sometimes have bargaining power, too (Bhutada, 2020), especially when organized in associations or cooperatives (Materia et al., 2021). Despite limited growth potential and a tendency to replicate what other businesses already offer (Sutter et al., 2017), their endeavours are entrepreneurial as they make do with what they have available (Baker & Nelson, 2005) to cope with and adapt to persisting challenges such as food insecurity (Brown et al., 2018), poverty (Vermeire et al., 2017), war (Tobias et al., 2013), or catastrophic effects of climate change (Shepherd & Williams, 2020; Wenzel et al., 2020). Because of this

[1] While not all small farmers are necessity entrepreneurs, entrepreneurship and agricultural studies recognize that many farmers engage in entrepreneurial processes in their endeavors of balancing new business development and their own subsistence (Fitz-Koch et al. 2018; Dias et al. 2019; Cucchi et al. 2021).

reciprocal dependency, necessity entrepreneurs' capacities to cope and adapt are essential, both for themselves and for their allies. Hence, these capacities need support and development.

Nevertheless, the extant literature has rarely analysed how strategic alliances shape necessity entrepreneurs' human capital – that is, the set of practices, competences, and 'ways of doing things' (Sutter et al., 2014; Busch & Barkema, 2020) – needed to cope with and adapt to unexpected challenges. We know that entrepreneurial practices and competences are vital to cope with unexpected challenges (Shepherd et al., 2020), and that necessity entrepreneurs like farmers can develop these capacities over time through experience (Ochago et al., 2021), interaction (Busch & Barkema, 2020), and knowledge sharing (Sutter et al., 2014). Yet, we know much less about how strategic alliances mould necessity entrepreneurs' capacities or, in other words, how they create (or fail to create) space for them to learn how to improve their livelihood resilience. In this paper, therefore, we address the following research question: *How do strategic alliances with necessity entrepreneurs support their human capital development and create space to let them learn how to improve their livelihood resilience?*

Analysing data from multiple cases (Eisenhardt & Graebner, 2007), we compared strategic alliances linking one private, medium-sized firm – Zimbabwe Super Seeds (ZSS), a seed company based in Zimbabwe – to seven associations of small farmers independent from each other. Data from 96 interviews with farmers and ZSS staff, triangulated with direct observations and secondary data over a temporal frame of 16 months, supported our analysis. This led to three key discoveries. First, small farmers' human capital developed in terms of changes of either causal or effectual behaviours, yet to different extents across the seven studied strategic alliances. Second, the combined development in these small farmers' causal and effectual behaviours went hand in hand with their perceived livelihood resilience. Finally, different levels of farmers' causal and effectual behavioural change were related to three governance mechanisms of strategic alliances, namely their intensity of resource pooling, distribution of decision-making rights, and formality of coordination mechanisms.

Building on these empirical findings, we develop a framework that explains how strategic alliances shape necessity entrepreneurs' capacities using the lens of effectuation theory (Sarasvathy, 2001). According to this framework, by observing entrepreneurial behaviors (Fisher, 2012), we can infer predictive, goal-oriented value creation (i.e., causation) as well as non-predictive value creation led by means available in a given moment (i.e., effectuation) (Chandler et al., 2011). With our framework, we contribute to entrepreneurship theory in three

ways. First, we expand understanding of value creation in necessity entrepreneurship (Dencker et al., 2021) in terms of human capital development and livelihood resilience. Second, we contribute to studies on organizational antecedents of causation and effectuation (Reymen *et al.*, 2015, Laskovaia *et al.*, 2019; Braun & Sieger, 2021), and their effects on incomes and livelihood stability (Smolka et al., 2018; Shirokova et al., 2020). Finally, we add to the literature on strategic alliances and entrepreneurs' human capital development (Foss et al., 2008; Milanov & Fernhaber, 2014; Jiang et al., 2016) in the context of necessity entrepreneurship (Busch & Barkema, 2020). By connecting and contributing to these strands of literature, our framework informs managerial and policy practices aimed at supporting necessity entrepreneurs' human capital development.

4.2. Theory

4.2.1. Necessity Entrepreneurship and Livelihoods Resilience

Because of its increasingly global appeal in explaining entrepreneurial processes triggered and sustained through a motivation of need, the notion of necessity entrepreneurship is evolving and under debate. In the Global Entrepreneurship Monitor (GEM), Reynolds *et al*. (2001) defined necessity entrepreneurship as a context for those starting a venture out of the strive to consistently fulfil their basic needs. Afterwards, necessity entrepreneurship was seen as process of unemployed individuals pushing to create ventures due to a lack of alternative sources of income (Vivarelli, 2004), dissatisfaction with their current livelihoods (Thurik et al., 2008), or family pressure (Giacomin *et al*. 2007). Building on Maslow's motivational theory (Maslow, 1943), Dencker *et al*. (2021) refer to necessity entrepreneurship as venture creation processes undertaken while seeking to fulfil basic physiological needs (e.g., food, water, air, sleep) and safety needs (e.g., shelter, health, security, stability). Accordingly, necessity entrepreneurship unfolds depending on whether those pursuing it seek to fulfil their physiological or safety needs, and whether they are endowed with low or high human capital – defined in terms of possessing education and entrepreneurial skills (Poschke, 2013). Hence, in contrast to partially overlapping and widely studied contexts, such as poverty (Bruton et al., 2013; Sutter et al., 2019) and the base of the pyramid (Webb et al., 2013; Sutter et al., 2014), the notion of necessity entrepreneurship provides a psychological perspective to entrepreneurial processes undertaken under the strive to fulfil basic physiological or safety needs (Dencker *et al*., 2021).

As necessity entrepreneurs seek to fulfil physiological and safety needs, their activities are oriented towards building their livelihood resilience (Shepherd et al., 2020). Livelihood resilience refers to the ability of coping with adversities – be them continuous forms of stress (e.g., adverse weather, poverty, food insecurity, living as refugee) or sudden shocks (e.g., natural, health or man-made catastrophes) (Ifejika Speranza et al., 2014) – that might potentially affect individuals, organizations or other systems (Shepherd & Williams, 2020; Wenzel et al., 2020), including those engaging in new venture creation (Shepherd et al., 2020). Recent research shows that necessity entrepreneurs' livelihood resilience intertwines with their behaviours and mindsets (Bullough et al., 2014), or when living as refugee (Shepherd et al., 2020). For example, when they are resilient, individuals are more likely to develop entrepreneurial intentions even in contexts of war (Bullough et al., 2014). In turn, new venture creation practices of refugees supporting their social integration (e.g., building bonds with locals, learning the local language, assimilating local traditions) might be entrepreneurial in the way that they purposively strengthen livelihood resilience (Shepherd et al., 2020). In line with current thinking on necessity entrepreneurship (Dencker et al., 2021), livelihood resilience and entrepreneurial processes might generate vicious or virtuous circles for those seeking to meet their safety needs.

Outside the context of necessity, other studies inform on how entrepreneurial processes support the resilience of new ventures. Recent studies suggest that entrepreneurial behaviour reflecting both effectual and causal logics supports new ventures' resilience (Reymen et al., 2015; Shirokova et al., 2020). Effectual behaviour, in particular, is non-predictive, emergent, and adaptive (Sarasvathy, 2001), as entrepreneurs focus on what they have, what they know, and who they know (Sarasvathy, 2008b). Conversely, causal behaviour involves predicting, planning, analysing, getting resources, and choosing activities as a function of an established end (Chandler et al., 2011). The combination of effectual and causal behaviour helps expanding ventures' scope of activities and exploring 'new ways of doing business' as they face adversities and the risk of crises (Reymen et al., 2015). This combination of effectual and causal logics strengthens ventures' performance stability (Shirokova et al., 2020). Conversely, in the context of necessity, we still have little understanding on how these entrepreneurial behaviours support livelihood resilience and, in turn, how they can be supported and learned over time in strategic alliances.

4.2.2. Strategic Alliances and Human Capital Development

While we argue that little research investigates the nexus between strategic alliances, necessity entrepreneurs' human capital development and livelihood resilience, a rich body of literature establishes that strategic alliances are vehicles for their members' learning (Hamel, 1991; Muthusamy & White, 2005; Inkpen & Tsang, 2007). Different from incubators, whose main purpose is to facilitate entrepreneurs' and other stakeholders' social relationships, experimentation and learning (Busch & Barkema, 2020), strategic alliances are traditionally organized for members to gain or sustain their competitive advantage (Ireland et al., 2002). Nevertheless, through the shared execution of tasks and the building of resource and activity interdependencies, strategic alliances develop a platform for members' knowledge and competence development (Inkpen & Tsang, 2007).

This broader literature on alliance learning provides insights on how the set of rules, transactions and relationships within a strategic alliance – that is, their governance mechanisms – govern the flow and pooling of resources and influence their members' entrepreneurial behaviour (Foss et al., 2008; Milanov & Fernhaber, 2014; Jiang et al., 2016). First, resource interdependence among strategic alliance members is critical to their learning (Janczak, 2008; Milanov & Fernhaber, 2014), as engaging in an alliance mitigates resource constraints that limit entrepreneurial activity (Brouthers et al., 2015). This resource complementarity increases individual members' affordances in the pursuit of new opportunities (Foss et al., 2008) and thus stimulates new entrepreneurial behaviour (Tocher et al., 2015). In a poverty context, strategic alliances' facilitated interactions influence knowledge flows and support the learning process of members living in poverty (Sutter et al., 2014).

Second, strategic alliances might shape their members' human capital development depending on the hierarchical nature of decision-making processes (Albers et al., 2016). Some scholars argue that high mutual influence among alliance members and low power imbalance increase reciprocal learning (Muthusamy & White, 2005; Inkpen & Tsang, 2007). The more members have influence on decision-making in an alliance, the more they learn (Makhija & Ganesh, 1997; Lin, 2005; Inkpen & Tsang, 2007). Strategic alliances with decentralized decision-making processes give members a tangible option to learn by exercising entrepreneurial judgement as they recombine resources to seize opportunities (Foss et al., 2008). Conversely, centralized decision-making, for example in the form of state-only control and ownership, makes entrepreneurial behaviour more planned and less flexible (Yiu et *al*., 2014).

Third, strategic alliances might shape members' learning either through formal coordination – for instance, mainly through contracts or bylaws regulating duties and rights among members – or informal coordination, that is, fostering trust and social relationships among them (Makadok & Coff, 2009). Strategic alliances rely on trust relationships among members to turn reciprocal experiences into collective knowledge through informal dialogue (Krishnan et al., 2006) and sensemaking (Tocher et al. 2015). Heavy reliance on contracts instead might restrict opportunism among members, they limit the openness needed for knowledge exchange (Larsson et al., 1998) and signal distrust among partners, thus negatively affecting knowledge exchange among members (Connelly et al., 2012). In the context of alliances with family firms, Bouncken et al. (2020) finds that very complete contracts might negatively influence reciprocal knowledge sharing when parties also attempt to establish trust relationships. Hence, this literature stream overall shows that the influence of formal or informal mechanisms on strategic allies' learning varies remarkably depending on the context.

In summary, a wide literature on strategic alliances has investigated their effects on members' learning, and more specifically on members' development in terms of entrepreneurial skills and behaviours. Nevertheless, we still know little about how these alliances shape the space for necessity entrepreneurs to learn through their partnership with private firms.

4.3. Methods

4.3.1. Case Selection and Empirical Background

We used a multiple case design (Eisenhardt, 1989) to understand how strategic alliances with necessity entrepreneurs support or hamper their human capital development. We opted for a cross-case comparison to explore several narrative contexts of experience across strategic alliances, each one serving as an experiment to support or reject the emerging theoretical framework (Yin, 2003; Eisenhardt & Graebner, 2007). Accordingly, we decided to compare a set of strategic alliances involving one private local company, Zimbabwe Super Seeds (ZSS), training and transacting with 12,000+ smallholder farmers - organized in farmer associations - as part of a starting seed multiplication business in Zimbabwe. The seed multiplication business model relies on an 'interlinked transaction'(Mitra, 1983). ZSS, as the alliance leader, provides improved seed varieties to smallholder farmers – who contribute with their own land and labour – and trains them how to multiply and store these seeds. Afterwards, ZSS buys these multiplied seeds back from the farmers. Farmers can sell the multiplied seeds only to ZSS; so, they cannot exploit other seed market opportunities.

Table 4.1: Background of the selected strategic alliances between ZSS and farmers

Name of the strategic alliance	Other stakeholders involved	Supporting programs	Key background information
Chipinda	Ministry of Agriculture (MOA), GRM consulting company	Seeds and Markets Project (SAMP, phase 1); Government mechanization program; Government Input Pack Scheme.	Farmers have recently received new farms under the government resettlement programs and are involved in several other government-led support programs. Majority of farmers are ordinary shareholders of ZSS. Level of farmers' trust towards buyers in general was high due to history of payment consistency.
Bvukuru	MOA, GRM consulting company	SAMP (phase 1); Government conservation agriculture program (*pfumvudza*).	Farmers are situated in small scale-oriented communal farms with low yield potential. Farmers are highly involved in Non-Governmental Organization (NGO)-led and government-led support programs. Farmers' trust towards buyers was affected by a history of delayed payments. Most of the farmers are not able to buy shares from ZSS.
Panganai	MOA; GRM consulting company. Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN).	SAMP (phase 1); Government mechanization program; Government Input Pack Scheme; Irrigation revitalization program.	This is considered as the 'home' of ZSS, and the large majority of farmers are ZSS shareholders. Yet, a history of inconsistent payment methods results in low farmers' trust towards buyers; moreover, some history of opportunism among farmers eroded significantly their reciprocal trust. The farmer association articulates in several sub-committees responsible for organizing different activities. Significant history of NGO involvement and support.
Rupike	GRM consulting company, Adam Smith International, Agritex, Renco Mine.	SAMP (phase 2); Vuna –Africa; Renco Mine-corporate responsibility; Irrigation revitalization program.	The farmer association involves an irrigation scheme with irrigation management committee; this fostered a history of farmer involvement in decision-making. Renco Mine, the local mining company, supports the activities of the irrigation scheme. Significant history of involvement and support of several stakeholders such as Food and Agriculture Organization, GRM and FANPARN. Majority of farmers are shareholders of ZSS. Close geographical proximity to Masvingo town expands market opportunities for farmers. Presence of private and government extension officers.
Gutu	GRM consulting company.	SAMP (phase 2); Government Input pack Scheme.	Poor infrastructure, in terms of roads and communication networks, limited the history of support from stakeholders. Limited industry development, other than agriculture, in the area. Farmers' trust towards buyers was affected by a history of delayed payments and transportation issues. Only a few farmers are shareholders of ZSS. Low involvement of other government-led support programs such as input pack scheme. Low agricultural yield potential.
Chikarudzo	GRM consulting company.	SAMP (phase 2); Government Input pack Scheme.	Farmers' trust towards buyers was affected by a history of delayed payments. Limited history of NGO support, but significant involvement in the Government-led SAMP project. Limited history of stakeholder support. Limited industry development, other than agriculture, in the area. Significantly higher farmers' reliance on public extension officers. Only a few farmers are shareholders of ZSS.
Kufandada	Adam Smith International, Government, GRM consulting company Local council, local agro-dealers, MOA.	Vuna –Africa; Irrigation revitalization program; Government mechanization program; Government Input Pack Scheme.	History of strong involvement and support by several NGOs and consulting companies (GRM, Adam Smith International, FANPARN) and Government. Level of farmers' trust towards buyers in general was high due to history of payment consistency. Interest of many local stakeholders (e.g., local councils, MOA) to engage with farmers. Only a few farmers are shareholders of ZSS. ZSS marketing and extension officers reside here, hence making it easier to engage with farmers on a continuative basis.

Source: Authors.

Within the ZSS business, we iteratively selected seven from the eighteen active strategic alliances for an in-depth study on the basis of their likely contribution to fit with emerging theoretical categories (Eisenhardt & Graebner, 2007). Along this iterative process, we first chose strategic alliances on the basis of our initial knowledge of the value they created for farmers in terms of human capital development.

As we started noticing differences in the strategic alliance governance mechanisms, we purposively selected the remaining strategic alliances also based on the emerging differences in their resource pooling, decision-making processes, and use of formal and informal coordination mechanisms. Hence, we selected these remaining cases with the aim to understand and explain contrasting patterns of the emerging constructs and relationships in the data (Herriott & Firestone, 1983). Table 4.1 summarizes the background of the seven selected strategic alliances.

4.3.2. Data Collection

To understand and compare the seven cases, fieldwork started in April 2019 and ended in August 2020 and was led by the first author with the support of two research assistants. The study triangulated several data sources to comprehend the institutional, social and historical context of the strategic alliances, their participating farmers' learning, and of their perceived livelihood resilience (see Table 4.2). The data sources included the following.

Archival documents. To have a preliminary understanding of the structure and functioning of the strategic alliances and to understand the possibilities to learn in the strategic alliances, we collected and reviewed archival documents at the ZSS company offices. These documents include samples of business agreements with different farmer associations, training manuals, workshop attendance registers and reading manuals.

Observations. During the first two months, the first author together with two research assistants observed the activities, practices and relationships among farmers, ZSS and other stakeholders influencing their strategic alliance. The first author also participated in farm activities and other social events such as 'training field days' to gain the trust of the farmers partnering with ZSS and get familiar with the research setting. Ethnographic field notes were recorded in a notebook. These observations served to mitigate retrospective sensemaking and desirability bias (Eisenhardt & Graebner, 2007).

Table 4.2: Description of case data

Data source	Number	Location	Purpose	Date
Secondary documents	15 training manuals, 9 contracts, 5 registers, 10 trainings events, and 1 website.	Zimbabwe Super Seeds (ZSS) offices.	To understand the governance structure and functioning of the strategic alliance. To understand how farmers were intended to learn.	16 April – 30 April 2019
Observation	55 days	Rupike, Kufandada, Panganai, Chikarudzo.	To observe the activities, practices and relationship between farmers and their private firm ally.	01 May – 25 June 2019
Go along interviews	**40 interviews**: - Smallholder farmers	Rupike, Kufandada, Panganai, Chikarudzo.	To access farmer' experiences, practices and interpretations.at the same time. To understand which and how governance mechanisms connected with processes of learning and changes in entrepreneurial behaviours.	01 May – 25 June 2019
Mapping workshops	**2 brain storming sessions:** **-** 60 participants each	Rupike, Kufandada, Chipinda, Bvukuru, Panganai, Chikarudzo, Gutu.	To have a deeper understanding of how the strategic alliances function in different farmer association contexts. To unearth the differences in governance mechanisms across strategic alliances.	26-30 June 2019
In-depth interviews	**56 interviews**: - 1 ZSS representative - 2 ZSS extension officers - 14 farmer association committee members - 39 ordinary smallholder farmers	Rupike, Kufandada, Chipinda, Bvukuru, Panganai, Chikarudzo, Gutu.	To understand what farmers learned and how they learned. To understand the relationships between governance mechanisms, learning processes and changes in entrepreneurial behaviour.	20 July – 30 August 2020

Source: Authors.

Go-along interviews. The first author conducted 40 go-along interviews to understand the organization of the strategic alliances and farm business activities. Asking questions to farmers whilst observing their field practices allowed us to understand and compare how farmers' human capital development was unfolding in real time (Kusenbach, 2003) as they engaged spatially with each other and with the ZSS representatives.

Mapping workshops. After two months of observations and go-along interviews, the research team collected empirical evidence through two workshops with 60 participants each, including agricultural extension officers, ZSS field representatives and leaders from farmer associations across cases. These sessions helped reflecting on the structural and learning differences among the strategic alliances together with the subject of the study.

In-depth interviews. After 13 months of these in-depth observations, we conducted 56 semi-structured interviews, each lasting between 30 and 45 minutes with farmers, farmer association leaders, ZSS extension officers and field marketing officers (Table 4.2). These additional interviews were necessary to understand changes of entrepreneurial behaviours over time, as well as the 'hard to observe' (Stake, 2010), such as the patterns of entrepreneurial learning within each strategic alliance context. As second data point in time, the interviews served to obtain a clearer distinction on how learning experiences and outcomes unfolded over time and across the seven cases of strategic alliances.

4.3.3. Data Analysis

Our data analysis began in August 2020 with a synthesis of data from multiple sources into a comprehensive case history of each strategic alliance. To ensure completeness and accuracy in searching for patterns and relationships within and across cases, the first author wrote initial drafts, and the second author reviewed them to offer an outsider's perspective. Afterwards, these were discussed with all authors. In our first analytical stage, we started identifying relationships between changes in farmers' entrepreneurial behaviours over time, as well as the perceived consequences of these changes on their livelihoods. This longitudinal process mostly relied on the two rounds of interviews which, with one year between them, discerned two data points over time and sought to capture retrospective accounts. We relied on key informants, workshops, observations and archival documents (Jick, 1979) to understand how changes in farmers' entrepreneurial behaviours related to processes at a strategic alliance level. This analysis involved a coding process where we extracted, compared, and modified concepts as new data emerged. We highlighted and graphically represented recurrent themes emerging from interview narratives and tried to avoid forcing data into preconceived and pre-existent categories (Glaser & Strauss, 1967).

In the second analytical stage, with rough and emerging constructs and relationships, we turned to the cross-alliance analysis.[2] This analysis revealed causality among relationships across cases in terms of drivers and consequences of necessity entrepreneurs' effectuation and causation at the strategic alliance-level. We looked for similarities and differences among the cases (Eisenhardt, 1989) to systematically compare and contrast constructs by moving from case data to theory (Glaser & Strauss, 1967). This iterative process involved the use of summary

[2] As our research was designed as cross-case comparison from the very start, the data analysis and empirical findings focused on construct and relational differences *across* cases (i.e., at the strategic alliance level) and not on differences *within* cases (i.e., at a farmer or farmer group level within the same alliance).

tables to explore emergent dimensions across cases. Two or three cases were cross analysed at a time before attempting to generalize to all the cases under investigation. By focusing on a few cases, we maintained focus on the data before elevating our level of abstraction of emerging constructs (Eisenhardt & Graebner, 2007). As our framework became more refined, we consulted extant literature on entrepreneurial behaviours, strategic alliances' governance mechanisms and entrepreneurial learning to refine our construct definitions, levels of abstraction and relationships, and to sharpen our logical arguments. Consistent with a replication logic (Yin, 2014), we finally applied the emerging framework to the seven strategic alliance cases.

As a third analytical stage, we refined each construct across the cases. We identified three dimensions of strategic alliance governance mechanisms and a set of farmers' entrepreneurial logics associated with changes in their effectuation and causation. The three identified governance mechanisms of strategic alliances involved:

- ***Resource pooling.*** Alliance members share a bundle of complementary assets with each other - either tangible (e.g., financial, human, physical or natural capital) or intangible (e.g., information, knowledge, or reputation) - and regulate how to access, control, use and recombine them (Ménard, 2004). Across strategic alliances, pooling is either *mandatory* or *voluntary*, where in case of the former participants are obliged by written agreements, and in the latter pooling is flexible and more informal.
- ***Centralization of decision-making rights.*** Alliance members establish rights and rules regarding the deployment and use of pooled resources in strategic alliances. Centralization specifies who holds authority to direct the strategic alliance activities, and the distribution of decision-making authority (Albers et al., 2016). Hence, the distribution of decision making in a strategic alliance is either *centralized* or *decentralized*.
- ***Combination of formal and informal coordination mechanisms.*** Alliance members engage in different ways of enforcing decisions over the use of pooled resources (Ménard, 2004). Strategic alliances often combine *formal* mechanisms (i.e. contracts, or other types of written sets of rules) and *informal* mechanisms (e.g., trust) to govern alliance activities (Bouncken et al., 2020).

Table 4.3: Summary of strategic alliance governance mechanisms, necessity entrepreneurs' behaviours and livelihood resilience

Strategic alliance name:	Governance structure of strategic alliances					Changes in necessity-based entrepreneurs' behaviours and livelihood resilience						
	Pooling resources		Decision-making rights	Coordination mechanisms		Causal behaviours			Effectual behaviours			Perceptions of livelihood resilience
	Mandatory resources	Voluntary resources	Centralization	Formal mechanisms	Informal mechanisms	Seasonal planning	Estimating profit and expenses	Record keeping	Focus on own means	Affordable loss	Flexibility	Reported income stability, food security, necessity assets, children school fees
Chipinda	√	√√			√√		√		√	√√	√√	√
Bvukuru	√√	√	√√	√√		√	√√	√√				√
Gutu			√√		√√						√	
Kufandada	√√	√	√	√√		√√	√√	√				√
Chikarudzo			√√		√√							
Panganai			√	√√			√			√		
Rupike	√√	√√		√	√	√√	√√	√	√√	√√	√√	√√

Legend: blank = low, √ = Medium, √√ = High

Source: Authors.

Moreover, at this stage, we understood that some of the farmers' behaviours, developed through their participation in the strategic alliances, had distinctive elements of effectuation and causation (Sarasvathy, 2001; Chandler et al., 2011). We found that these constructs related to each other and to indicators of livelihood resilience (Ifejika Speranza et al., 2014) (Table 4.3). We noted that these relationships were causal, as the three governance mechanisms of the strategic alliances systematically shaped farmers' behaviours and livelihood resilience (Figure 4.1).

4.4. Empirical Findings

The framework emerging from the comparison of the seven cases of strategic alliances between ZSS and farmer associations can be synthesized in three points (Figure 4.1). First, necessity entrepreneurs – in this empirical context, small farmers entering the seed market to sustain their households' basic safety needs – support their livelihood resilience when they develop a combination of causal and effectual behaviours.

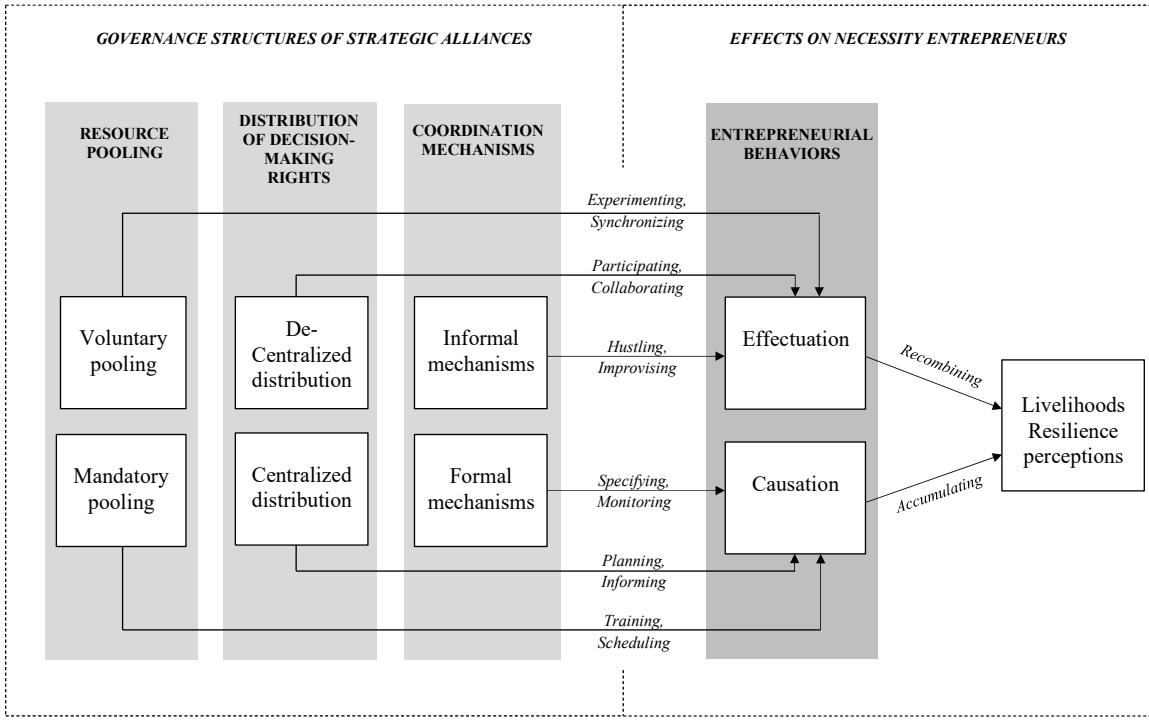

Figure 4.1: Strategic alliances, necessity entrepreneurs' effectuation, causation and livelihood resilience

Second, necessity entrepreneurs develop causal behaviours predominantly when strategic alliances involve mandatory resource pooling, centralized decision-making, and formal coordination mechanisms. Third, vice versa, necessity entrepreneurs build effectual behaviours when strategic alliances configure voluntary resource pooling, decentralized decision-making, and informal coordination mechanisms. Finally, in line with these relationships, the framework describes the processes through which (i.e., *how*) these strategic alliances shape necessity entrepreneurs' entrepreneurial behaviours and, in turn, their livelihood resilience.

4.4.1. Necessity Entrepreneurs' Effectuation, Causation and Livelihood Resilience

Our findings first reveal that farmers perceived to achieve more stable household income and food security, hence livelihood resilience, as they developed effectual and causal behaviours (Figure 1, right side; Table 3). The case of Rupike exemplifies how farmers became able at combining causal and effectual behaviours through the engagement with their ZSS partners. A farmer revealed how he developed habits of planning for their use of financial and physical resources as an outcome of financial trainings: "*I am now doing all that* [profit and loss estimations] *in my farm. Before it was different; everything seemed haphazard to me".* And then, referring to her peers, he explained that sharing planning knowledge with them occasionally was equally important to gain stability: "*If you ask them, they will show their seasonal plans and records"* [RPK:5]. These plans were critical for farmers to accumulate resources for better coping with adversities: *Many […] accumulated assets such as chickens, cattle and donkeys, and even farming equipment* [through improved income]. *This is important for us in times of crisis"* [RPK:10] said a farmer. Another claimed: *"I bought a security fence […] to surround my home and I managed to build my own shades for storing my harvest crops, parking my cart. I also bought several farming equipment to expand my production"* [RPK:3].

While planning and accumulating resources, Rupike farmers also became accustomed to swiftly adapting to changing conditions by recombining available resources. One informant revealed: *"These* [changes in weather patterns] *represent a challenge, but we always keep an eye on the weather reports"* [RPK:8]. Because of the uncertainty they face, their focus on affordable losses and current means – for example, being extremely prudent in accepting loans – remains very much present in their way of doing things. One farmer explained: *"I can only get a loan to add my fertilizer. But what if I fail? What if I plough and I don't get out well because of the pumps that sometimes fail; then how do I pay back the loan? So, I always start with the little resources I have"* [RPK:4]. Another one followed the same line of thinking: *"Imagine if I start with 200*

chickens and they all die: my family will suffer. I think most farmers here will agree that it is important to try with a few and learn from that" [RPK:8].

By accumulating and recombining resources, the combination of causal and effectual behaviours proved to support Rupike farmers distinctly more than farmers in other alliances with ZSS. A farmer in Rupike proudly stated: "*I managed to build a proper house for my family, my children are well fed because I now have a vision. […] Even other farmers* [in Rupike] *have a better life than anyone else*" [RPK:1]. These improvements took place with the practice of causal and effectual behaviours in the partnership with ZSS: *"I was a very poor farmer, someone who was not even convinced that farming on its own can be a source of income and livelihood*" [RPK:10], but *"I have learnt a lot from other farmers and ZSS officers"* [RPK:3].

The collective development of causal and effectual behaviours among farmers in Rupike and the consequences in terms of their livelihood resilience are striking in comparison to the situation of farmers in other strategic alliances. For example, in the cases of Gutu and Chikarudzo, farmers did not significantly develop either causation or effectuation through their strategic alliance with ZSS. Farmers describe their challenges in mobilizing their own means (*"Without water you cannot do anything. […] I will just wait for the rain"* [GTU:3]) and planning seasonal investments ("*It is important for me to consider profit: even the lending scheme would want us to demonstrate the profitability* [but] *we lack knowledge on the calculations*" [GTU:5]). Many of these farmers confessed how these limits reflect on their livelihoods: "*As it stands, we have not yet realized much from this alliance apart from a few who are able to look for their own resources and diversify into other income generating projects* [outside the alliance]." Ultimately farmers in these cases feel these limits to have negative consequences on their livelihoods: "[Weather] *changes are a threat to our farming. You see, there is no rain, we have no water to irrigate our crops. Many have migrated to South Africa. If we are not flexible, we will not be able to make a living*" [GTU:2].

Finally, it is mostly farmers developing *both* causation *and* effectuation in their strategic alliance with ZSS who were predominantly able to notice positive changes in their livelihood resilience. On the one hand, the case of Chipinda illustrates the limits that farmers face when engaging in effectual behaviours ("*We* [Chipinda farmers] *will not see this [weather changes] as something to stop from progressing. We will have to persevere. We always find ways to adjust to the changes in the environment*" [CPN:2]), but not in causal behaviours. A farmer, for example, expressed the limits she faces when seeking to plan and invest resources: "*I will*

calculate potential profits first because, if I don't do that, I might just jump into a business which is already making losses […but] *as farmers, we still need more information on that."* [CPN:5]. As an outcome of this process, farmers in Chipinda were generally able to invest mainly in low-value assets ("*I am now able to earn money, repairing my house, I was able to earn money to buy farming tools*" [CPN:7]) and other household expenses ("*I am now able to send my children to school without hassles, building my fowl run* [and] *goat sheds*" [CPN:5]. On the other hand, the cases of Bvukuru and Kufandada exemplify the challenges of developing predominantly causal behaviours ("*We always make sure that this* [record keeping] *is part of our business activities*" [BKR:5]) rather than effectual behaviours. In these cases, farmers saw some improvements in their livelihood resilience. For example, one stated: "*For many farmers this has brought some changes. Personally, [...] I was able to construct a decent family house*" [BKR:9]. Yet, these many farmers also felt ill-at-ease with the growing jealousy and competition with peers: "*You have to visit other farmers even if they are not happy of that: some are still jealous!*" [BKR:4]. This feeling was destabilizing, because – despite the resources accumulated - farmers could not necessarily count on their immediate peers and network in case of an unexpected crisis or need.

4.4.2. Governance Mechanisms of Strategic Alliances and Entrepreneurial Learning

Empirical findings from the comparison of the seven strategic alliances also revealed consistent patterns linking their governance mechanisms to farmers' behaviours (Figure 1, left side; Table 3). In the following, we elaborate on how three governance mechanisms of strategic alliances shaped their causation and effectuation.

4.4.2.1. *Intensity of Voluntary and Mandatory Resource Pooling*

A first noticeable feature is that all strategic alliances' members pool resources and distribute rights to access, control, use, shape and recombine them either as a voluntary choice or as an obligation. In other words, strategic alliances' resource pooling was either voluntary or mandatory. Voluntary and mandatory resource pooling in these alliances may co-exist or, in other cases, be limited. In Rupike and Kufandada, for example, the focal company ZSS chose to facilitate access to finance, pay water bills, organize learning tours, organize trainings, support field day events and share knowledge to support farmers. At the same time, ZSS made contractual agreements to provide farmers with seed inputs, transport, storage and processing

equipment. Conversely, in Gutu and Chikarudzo, ZSS limited its resource pooling to provide seeds inputs, information and knowledge, yet no other forms of physical or financial capital.

Our data analysis reveals how intensity of voluntary resource pooling relates to changes in farmers' effectuation. As an example of *voluntary resource pooling*, farmers in Rupike and Kufandada were facilitated with access to finance. With that capital stock from ZSS, they started synchronizing their business activities by temporally matching their own farm and ZSS' capital resources (Figure 1). As one farmer in Rupike revealed: *"*[Because of our partnership with ZSS*,*] *we can access* [loans] *through Agribank if we want to apply [....]. Last time we applied for a loan from CBZ bank, and we settled it [....]. ZSS facilitated that: this helped us a lot in our farm activities. [...]. We were able to buy other inputs such as fertilizers and chemicals in time*" [RPK:2]. By accessing voluntarily pooled resources and matching them with their own resources in novel ways, farmers were able to experiment with new production methods and cropping varieties (Figure 1). As a ZSS extension officer in Chipinda reported: *"If farmers get* [finance and inputs] *in time, they are able to do small-scale experiments in their farms. […] Most of the farmers are doing that [....]. They are very quick to try out something new now."* Another smallholder farmer in Chipinda commented on voluntary forms of facilitated peer-to-peer learning: "*We go to that farmer's field to see and learn how he did it; how he started planting the seeds, until his seeds came to fruition […]. We ask questions to the farmer [...]. I always take time to reflect on these field days learning activities and try out on my farm."* Juxtaposing this with other cases, we systematically noted that where voluntary resource pooling was low, behaviours reflecting effectuation were also low. These farmers simply had no opportunity to recombine or synchronize external resources to their own means to try new ways of farming and doing business. As one committee member in Chikarudzo confessed: "*ZSS does not help us with any money. […] We have no access to bank loans*." [CKD:1]. In a similar fashion, another farmer in Gutu expressed his disappointment: "*They [ZSS] do not visit us often […] Our wish is for ZSS to visit us often and also attend our field days*" [GTU:2].

In contrast to voluntary resource pooling, *mandatory resource pooling* - for example, contractually agreed loans in terms of finance or inputs from ZSS to all members of a farmer association - encouraged farmers' causal behaviours. ZSS' contractual obligations of providing farmers with some key resources gave farmers a chance to schedule some farm activities over their planting and harvesting seasons (Figure 1). A farmer in Rupike declared: *"As per the agreement, we do not have problems. They should keep giving us seeds, chemicals and fertilizers in time, and keep paying us in time, so that we move along with the changes"*

[RPK:10]. From a different perspective, a ZSS marketing officer in Kufandada said: "*I am a resident officer [...] I stay with the farmers. [...] That's part of our terms of agreement. [...]. Most meetings are scheduled twice a month, but inspections are on daily basis*" [KFD:1]. Mandatory resource pooling also involved more structured forms of collective learning, for example through training events (Figure 1). The same ZSS extension officer stated: *"We do a lot of planning and budgets-related trainings with the farmers especially when they want to market their produce. We develop what we call a price mountain to see what they have used in terms of inputs, selling price, profits and farming as a business"* [KFD:1]. These contractually agreed pooling of resources and structured forms of learning shaped farmers' habits to plan for longer-term investments which are oriented towards the development of causal logics. One farmer in Rupike declared: *'I am now producing for the market: I am able to plan for the future; I can do budgeting [...]. I have all the records for my farm. Besides, I see myself more informed about the farm business environment because of constant touch with more knowledgeable people such as extension officers, inspectors, field officers"* [RPK: 6]. Then again, strategic alliances with low mandatory resource pooling reported low levels of causation behaviours. One farmer in Gutu stated: "*Inputs were sometimes coming late, but many farmers did not get it [...] Even pesticides were not given to everyone [...] this affected our timing of production a lot*" [GTU: 5]. A farmer in Chikarudzo also revealed that, "*They were supposed to train us on farming as a business, even on the type of fertilizers, quantity to use on a particular crop and proper pesticides use for different crops, but they only came in the first days [...]. Because of that*, *we have challenges with planning and budgeting resources*" [CKD:3].

4.4.2.2. *Distribution of Decision-making Rights*

We found that different levels of farmers' causation and effectuation across the seven strategic alliances related to different distributions of decision-making rights among members. In some strategic alliances, decision-making rights were centralized, that is, concentrated in few committee members' hands, which is composed of ZSS and farmer associations' heads. One farmer in Chikarudzo revealed: *"We sometimes experience misunderstandings especially at harvest. Some farmers want to deliver their crops, and others will be withholding their crops expecting for them to raise the price. [...]. The challenge is that most of the time, our alliance committee accepts the prices on behalf of all farmers"* [CDK:3]. Similarly, a female farmer in Gutu stated: *"I attended* [meetings] *some time ago. Now there is only one person attending* [...]. *They* [alliance committee] *always select him. We are not sure why they only select one person. They* [alliance committee] *will communicate with him personally, so we actually do not know*

the criteria used" [GTU:2]. Conversely, in strategic alliances like Rupike and Chipinda, informants expressed their structural involvement in decision-making: "*We always attend the* Annual General Meeting; *they* [the alliance committee] *always consult us, even in setting the price of our seeds. We feel being part and parcel of the alliance*" [RPK:10]. This shows that other strategic alliances had more decentralized distribution of decision-making rights, for example in setting the seed prices.

We identified two mechanisms through which decentralized decision-making triggered farmers' effectual behaviours: participating in alliance deliberations and collaborating with other farmers (Figure 4.1). First, by participating in alliance deliberations, farmers gained the organizational knowledge and confidence necessary to experiment with new farming methods. The following statements exemplify how farmers' joining alliance-level deliberations was instrumental in Chipinda and Rupike. "*I was a committee member, but my term has expired now* [...] *We allow others to participate so that we can learn and teach fairly* [....] *Every member can vote for committee members during meetings*" [CPN:9], stated a former committee member and now participating farmer. Another farmer who never held prior committee roles also explained: "*Our committee, together with* [alliance committee chair; name withheld] *always invite us for meetings when there is need to make important decisions. For example, when it's time to organize a field day event; they encourage everyone to be fully involved in the organization of these events. [...] This is a learning process for us as farmers.* [RPK: 7]. An extension officer illustrated well how the organizational knowledge gained in alliance-level deliberations generates effectual behaviours: "*She is a female farmer* [and] *shareholder of the company, hence access most of the alliance meetings and invited for training sessions. As such*, *she is confident and always tries out new varieties and farming methods in her farm"* [CPN:1].

A second mechanism through which decentralized decision-making rights in strategic alliances triggered farmers' effectual behaviours was through enhanced collaboration among farmers. Importantly, deliberation at the alliance level reduced jealousy among farmers, who, in turn, started seeing each other as friends and co-workers rather than as competitors. For example, in Rupike and Chipinda, many farmers made statements like: "*Some farmers used to be very jealous of each other before* [the start of this partnership with ZSS]. *But when we joined this business partnership, we are often encouraged to work together especially in deciding on the key activities and use of some resources like tractor and management of irrigation equipment.* [...Now] *many farmers here agree with me that we need each other to have like-minded friends to be successful*" [RPK:9]. Collaboration is seen also as instrumental to manage uncertainty.

For example, a farmer revealed: "[Before the alliance] *most of the time our crops would rot because we lacked information-sharing among ourselves. Some buyers used to come at the seed collection only, telling us their own prices. Now that we work together with ZSS*, *at least we can be sure of what to expect in each season. We will share the loss, in the worst scenario. [...] Because of this, we have changed our way of seeing business partnerships now. We can safely say the company is our good friend"* [RPK:3].

Conversely, we noticed that centralization of decision making in strategic alliances shaped farmers' causal behaviours in two ways: by informing them and stimulating their planning (Figure 4.1). In Chikarudzo, for example, farmers complied their behaviours to the information about objectives and ways of operating expected by the alliance committees, hence constraining their experimentation with alternative farming methods. A farmer elaborated: "*The meetings that we have here are mainly for informing us on what to do, not to hear our suggestions. [...] Participation in these meetings is only symbolic. As such we always have to stick to what they told us at first; that is to use the guidelines and business knowledge we have*" [CKD:1]. The alliance encourages farmers to engage in careful planning of farm activities. In these alliance contexts, farmers spent more time on learning activities focused on record keeping, seasonal planning and estimating profit and expenses. One farmer in Bvukuru said, "*We should do farming as a business* [...]. *Keeping records and profit is farm business; isn't it? [...]. If we fail to perform well, they* [ZSS] *may decide to stop working with us"* [BKR:4]. A statement of another farmer shows how this centralization of decision-making pushes farmers into planning: *"Only the chairperson […] attends the meetings. [...] We always hear rumours that he is or was in Masvingo for farmers' conference. [...] Because of that*, *we have to stick to what they* [ZSS] *told us at first* [follow the guidelines and keep records] *to avoid disappointment* [e.g., failed provision of seeds]" [GTU:3].

4.4.2.3. *Combination of Formal and Informal Coordination Mechanisms*

Finally, we discovered that the influence of strategic alliances on farmers' causation and effectuation development depended on the formality of the coordination mechanisms. The seven strategic alliances between farmers and ZSS varied markedly in terms of formal (written agreements, e.g., bylaws and contracts) and informal rules and norms (unwritten agreements, e.g., personal and business trust relationships) guiding members' behaviours and expectations. In Panganai, formal rules and procedures were dominant: expectations and procedures for resource allocation were clearly laid down, and additionally members tended to submit to the

rules and procedures. A farmer in Panganai said: "*We sign the contract here, and they value it so much.* […] *Most of our deals are covered by the contract, and we are obliged to follow it*" [PNG:1]. By contrast, in Chikarudzo and Gutu, alliance operations were ostensibly guided by personal relationships, friendship, trust and verbal agreements. A farmer revealed: "*The contract is sometimes not used here [...]. They just make changes without referring to contracts. For example, they just agree with the committee on certain matters such as transport provision and methods of payment. This is not specified in the contract [...] So, most of the agreements are not at all in the contract*" [GTU:4]. Halfway along this continuum of formal-informal coordination mechanisms, a farmer in Rupike said: *"The contract is important for everyone who want to join the partnership but some of the agreements are not on paper. They* [ZSS] *always give us transport to carry our produce to their processing location, but this is not agreed on paper. Sometimes they communicate informally through committee* [alliance committee]. *We see each other as friends, so we trust each other. So, I can say we also use non-written agreements based on trust"* [RPK:1].

We discovered that strategic alliances employing formal coordination mechanisms stimulate farmers' development of causal behaviours in two ways: first, by specifying expectations in written agreements and, second, through monitoring of the farm activities (Figure 1). Specification of contracts acted as a powerful incentive for farmers to comply, plan and work towards the goals set in the strategic alliance, while constraining flexibility and spontaneity of farmers' action. In Panganai and Kufandada, farmers stated: *"We sign contracts here. They expect us to deliver all my produce after harvest [....]. If they give you 50 kg of seed, you should deliver 50kg plus to show that you have done something productive"* [PNG:5]. When farmers considered the coordination and control mechanisms to be highly constraining, they engaged less in experiments with new seed varieties. This contract specification was also followed by ZSS' monitoring of the farm activities. An extension officer in Kufandada who had the responsibility to visit farmers' fields, illustrates the rigidity in the way contract compliance is monitored**:** "*At an association level, farmers have their constitution [...] If we are planting maize, every farmer must plant maize; if they are spraying, everyone has to spray. At a partnership level, we have contracts with every farmer [...] everyone must follow the contract terms"* [KFD:1]. Feeling the pressure to align with these formal expectations, many farmers made statements such as: *"I will always write my goals down […]. Profit is very important in our farm businesses [...]"* [KFD: 3]. Hence, alliances with a dominance of formal specification and monitoring mechanisms hampered farmers' push towards experimentation and

improvisation, while organizational incentives towards farmers' causation behaviours were high.

Conversely, we found that informal coordination mechanisms in strategic alliances positively influenced farmers' effectual behaviours in two ways: hustling and improvising (Figure 1). First, many farmers in Gutu and Chikarudzo revealed how hustling became an important way to navigate uncertainty of changing input prices, unclear seed collection and payment dates as a response to little enforcement of formal agreements with ZSS. An extension officer in Chikarudzo revealed: "*When they [farmers] are not monitored they will not do the right thing [...]. Farmers will decide to do side selling. [...]. Sometimes they mix the seeds with non-certified seeds. Yes, trust is good, but too much trust is bad. They want to gain at the expense of the company*" [CKD:2]. In reaction to few formal mechanisms, trust relationships started playing a more prominent role in farmers' business in these alliances; these generated a more supportive environment for unplanned experimentation. A farmer in Rupike stated: *"We have our own saying […] ''let's take a learning tour''* [regai timbotora mumemo]. *[…] As a farmer you will be curious to see how other farmers are progressing and willing to learn from other farmers activities."* These informal chats, over time, reinforced farmers' inclination to experiment with means that were locally at reach. *"Because of the ideas from friends*, *most of the farmers are very quick to try out something new",* said an extension officer in Chipinda, *"Some try new seed varieties on a separate part of their farm"* [CPN:6]. Hence, informal coordination supported farmers' behaviours to explore improvised ways to opportunity-seeking without following a script or a planned set of expectations.

4.5. Discussion

Overall, the framework emerging from our empirical findings suggests that the governance mechanisms of strategic alliances shape their participating necessity entrepreneurs' effectuation and causation, and, in turn, their livelihood resilience (Figure 4.1). These structures either generate or restrain space for necessity entrepreneurs to learn. Our framework builds upon, expands and challenges three streams of entrepreneurship theory: necessity entrepreneurship; effectuation and causation; and strategic alliances (Table 4.4). The following sub-sections articulate our contribution to these streams.

Table 4.4: Theory contributions to three strands of entrepreneurship literature

Contributions to theories of:	**4.5.1. Necessity entrepreneurship**	**4.5.2. Effectuation and Causation**	**4.5.3. Strategic Alliances**
By ***building upon*** the notion that:	Basic human needs represent a key drive of entrepreneurial processes (Dencker et al. 2021).	Effectuation *and* causation together are vital to stabilizing income (Smolka et al. 2018) and coping with adversity (Shirokova et al. 2020).	Learning, as human capital development, represents a key value creation process in strategic alliances (Inkpen and Tsang 2007; Milanov and Fernhaber 2014).
By ***expanding*** existing theory to embrace the idea that:	Perceptions of livelihood resilience to adversity represent important outcomes of necessity-driven entrepreneurial action.	Inter-organizational collaboration, such as in strategic alliances, represent a key organizational driver of effectuation and causation.	Learning in strategic alliances has ripple effects of their members' logics and perceptions of livelihood resilience (in other words, it might have transformative potential).
By ***challenging*** existing theory with evidence that:	Differently from Dencker et al. (2021)' assumptions, in the context of strategic alliances, necessity entrepreneurs' human capital is moldable even in short time spans.	Differently from Reymen et al. (2015)'s findings, in the context of strategic alliances, it is organizational decision-making processes that shape effectuation and causation (rather than the external environment).	Differently from Albers et al. (2016) and Bouncken et al. (2020) respectively, in the context of strategic alliances, it is the balance between (de)centralized decision-making and (in)formality that fosters learning (rather than bias towards decentralization and informality).

Source: Authors

4.5.1. Contribution to Necessity Entrepreneurship Theories

First of all, the empirical setting of our research suggests that necessity entrepreneurship can (and perhaps should) be further studied in the context of strategic alliances. The empirical setting of local agricultural value chain partnerships in Sub-Saharan Africa provides just an example, among many, of private firms – either local or global, upstream or downstream value chains – partnering with people fighting for their basic physiological and safety needs, such as small farmers. While the literature on institutions and poverty (Bruton et al., 2010; Khavul et al., 2013) and on strategic alliances at the bottom of the pyramid (or BOP, (Hahn & Gold,

2014); Dembek et al., 2020)) are already immensely rich, we build upon the notion – established by the proponents of necessity entrepreneurship (Dencker et al., 2021) – that the drive to fulfil basic physiological and safety needs is vital to understand what drives and shapes people's entrepreneurial action and participation in strategic alliances. This needs-based view of necessity complements income-based views of poverty and BOP in understanding entrepreneurial behaviors on the basis of their intrinsic motivations (Reynolds *et al*., 2001).

Building upon this assumption, our framework adds an important element to the study of necessity entrepreneurship: necessity entrepreneurs' focus on fulfilling basic physiological and safety needs goes hand in hand with their goal of supporting their livelihood resilience. In particular, our framework suggests that livelihood resilience represents a sensible outcome of necessity entrepreneurs' activity in strategic alliances. Therefore, this framework helps connecting the study of necessity entrepreneurship in strategic alliances with processes of striving for livelihood resilience, which we know to be often entrepreneurial (Shepherd & Williams, 2020; Shepherd et al., 2020). Future studies on livelihood resilience as outcome variable would enrich the field of necessity entrepreenurship, because strategic responses to crises (Wenzel et al., 2020) very much depend on the need of people to consistently maintain, or at least restore, their basic physiological and safety needs.

Relative to the extant necessity entrepreneurship literature, our framework questions the widespread assumption that human capital represents a given for those seeking to fulfil their basic needs (Baptista et al., 2014; Capelleras et al., 2019; Dencker et al., 2021). As they seek to satisfy they basic needs, necessity entrepreneurs learn by doing within relatively short spans of time. The development of their entrepreneurial behaviors differs from changing their education background, which is usually considered as indicator of human capital in necessity entrepreneurship (Dencker et al., 2021), yet it represents an important dimension of human capital development in organizations (Foss et al., 2008). We envision and encourage more studies on necessity entrepreneurs' human capital development.

4.5.2. Contribution to Effectuation and Causation Theories

Our framework confirms findings from recent literature showing that entrepreneurs jointly engaging in effectual *and* causal behaviours were more likely to achieve stability in their income (Smolka *et al.*, 2018) and livelihoods (Shirokova *et al.*, 2020). The importance of combining effectual and causal behaviours for income and livelihood stability is particularly

relevant in the context of necessity entrepreneurship which, as discussed above, focuses on people seeking to fulfil their basic physiological and safety needs. Based on our empirical findings, we first argue that the study of effectual and causal behaviours is particularly important to understand how new ventures – especially those founded or carried by necessity entrepreneurs – cope with adversity (Shepherd & Williams, 2020).

Relative to existing studies on the organizational antecedents of causation and effectuation (Laskovaia et al., 2019; Braun & Sieger, 2021), our emerging framework expands knowledge from intra- to inter-organizational settings. In particular, we found that strategic alliances shape their members' effectual and causal behaviours in three ways: through their mandatory and voluntary pooling, through their (de)centralization of decision-making, and through the (in)formality of coordination mechanisms. While the Braun & Sieger's (2021) find that pooling resources among family members contributes to develop effectuation and causation in a novel setting, we find that strategic alliances can – at least to some extent – contribute to achieve a similar outcome. Moreover, these findings expand theories on the importance of network-weaving institutions, such as incubators, to stimulate effectuation (Kerr & Coviello, 2020) to ultimately cope with uncertainty (Busch & Barkema, 2020).

Zooming further in on the relationship between entrepreneurial behaviours and organizational decision-making processes, our framework suggests a different causality relative to Reymen et al. (2015). While Reymen et al. (2015) found that changes in the external environment of a new venture shaped effectual and causal behaviours – in particular, changes in environmental uncertainty, resource dependency and stakeholder pressure – we found that the drivers of effectuation and causation were internal to the strategic alliance, that is, resource pooling, centralization of decision-making and the formality of the coordination mechanisms. This difference of results across different contexts would make it relevant, in future research, to understand if and how the external environment might shape the governance mechanisms of strategic alliances and, in turn, effectuation and causation of their members.

4.5.3. Contribution to Theories on Strategic Alliances and Learning

Finally, our framework contributes to the literature on learning in strategic alliances (Inkpen & Tsang, 2007) and, specifically, on the development of entrepreneurial behaviours, skills and knowledge (Foss et al., 2008; Milanov & Fernhaber, 2014; Jiang et al., 2016). Our empirical study confirmed three general messages established in this literature stream. First, the pooling

of resources in strategic alliances expands opportunities for supporting entrepreneurial behaviours and orientation (Sutter et al., 2014; Tocher et al., 2015; Welter et al., 2018; Agarwal et al., 2020). Second, the more members are involved in decision-making within a strategic alliance, the more they develop entrepreneurial mindsets and skills (Foss et al., 2008; Kleinbaum & Tushman, 2007; Kaehr Serra & Thiel, 2019). Third, the combination of formal and informal institutional elements where strategic alliances are embedded shape their members' entrepreneurial actions (De Castro *et al*., 2014; Yiu *et al*., 2014; Webb *et al*., 2014).

While our framework connects with existing knowledge on the effects of governance mechanisms of strategic alliances on learning, we broaden our understanding of their influence on members' effectuation and causation in more counterintuitive ways. As effectual and causal behaviours reflect underlying logics (Fisher, 2012), our empirical findings suggest that entrepreneurs strengthen their livelihood resilience on the basis of what they learn by doing in a strategic alliance. For example, in our case, as farmers developed small-scale investment plans and synchronized their collective use of resources in partnership with ZSS, they learned how to apply their experience also to other farm and family contexts. This learning strengthened their confidence in adapting and coping with future unpredictable events. Generalizing from the empirical case, our study opens a novel perspective on the transformative value of strategic alliances; in other words, on how strategic alliances might generate ripple effects on their members' lives beyond their boundaries.

By taking this novel perspective of linking strategic alliances to their members' effectuation and causation development, we challenge existing knowledge on the effects of governance mechanisms in three ways. Different from Sutter et al. (2014), we find that alliance members mould their behaviours in different ways – that is, by developing both effectual and causal behaviours – from both mandatory and voluntary forms of resources pooling. That is, not only voluntary social interactions with peers and other alliance members stimulates their learning, but also their following of mandatory templates (e.g., frequent inspections or facilitated access to finance in our empirical case). Moreover, contrary to Albers et al. (2016), our framework suggests that not only decentralized decision-making processes support their members' learning, but also their centralization. In our empirical study, hierarchical decisions taken by leaders of the partnership favoured farmers' development of business plans, which reinforced their causal behaviours. Finally, contrary to Bouncken et al. (2020), we found that formal procedures and bylaws in strategic alliances played an important role in fostering entrepreneurial behaviours alongside the importance of building informal relationships.

Altogether, our framework suggests that mandatory, centralized, and formal governance processes in strategic alliances do play a role in entrepreneurial learning in necessity contexts. Future research would benefit from understanding when, how, and to what extent these governance mechanisms support learning in other necessity contexts.

4.5.4. Managerial Implications

On the basis of the framework emerging from our empirical study, we see two main implications for managers in strategic alliances and their stakeholders. The first implication involves changing governance mechanisms to shape strategic allies' learning; the second one entails assessing, negotiating and communicating the value of human capital development of their members struggling to meet their basic needs.

First and foremost, our findings suggest three alliance governance mechanisms representing levers to stimulate and calibrate their members' human capital development and, in particular, entrepreneurial capacities of those allies striving to stably meet their basic needs. These are: intensity of resource pooling, distribution of decision-making rights, and formality of coordination mechanisms (Figure 1). The identification of these three levers implies that, depending on their members' human capital, managers of strategic alliances can shape their capacities in several ways to support their livelihood resilience. In some instances, for example, members in need might engage mostly in effectual rather than causal behaviours, struggling to accumulate resources to consistently support their safety needs. In these situations, managers have three options to consider: they can increase their mandatory pooling of resources, for example by scheduling training events or scheduling the regular provision agricultural inputs to all members; or, they can centralize their decision-making to provide members with a plan and a structure to encourage small-scale, collective investments; or, finally, they can establish more formal relationships among members, for example introducing more complete or enforceable contracts and bylaws. Vice versa, managers can encourage the pooling of voluntary resources, more decentralized decision-making processes or more informal coordination mechanisms when their members in need struggle to engage in effectual behaviours that help them to recombine resources in the face of unexpected challenges. Along with managers of strategic alliances, and depending on their incentives and goals in collaborating, also stakeholders outside their boundaries might contribute to alter these governance mechanisms to necessity entrepreneurs' human capital development. For example, in the cases of the value chain partnerships in Zimbabwe (Table 1), government-funded programs, NGOs and consulting

companies occasionally contribute to the strategic alliance; these contributions can be oriented, through the use of the identified levers and in coordination with alliance managers, towards the purpose of developing human capital development of members in need.

Second, perhaps more fundamentally, our framework suggests that managers have the opportunity to assess and communicate value creation in strategic alliances on the basis of human capital development and changes in livelihood resilience of their members in need. Relative to other collaborative endeavours - such as social entrepreneurship or social innovation hubs or incubators involving multiple societal stakeholders (Selsky & Parker, 2005; Austin & Seitanidi, 2012) – strategic alliances with necessity entrepreneurs receive relatively scant attention regarding their potential to create positive (or negative) social impact at scale (IFC, 2019; GEM, 2021). Managers or stakeholders benchmarking if and how strategic alliances support (or hamper) their members' human capital development and livelihood resilience might represent a way to legitimize (or delegitimize) them (Gray & Wood, 1991). This way of legitimizing strategic alliances might influence further investments from both private or public sources, or to strengthen their institutional support (Dacin et al., 2007).

4.6. Conclusion

From a cross-case comparison of value chain partnerships between a seed company and seven association of small farmers in rural Zimbabwe, we developed a framework describing how strategic alliances support (or hamper) necessity entrepreneurs' human capital development and, in turn, their livelihood resilience. We argued that this framework contributes to advance and connect three literature streams: on necessity entrepreneurship, by challenging existing assumptions on human capital development of striving to meet their basic needs; on effectuation and causation (and their linkages with livelihood resilience), by extending the study of their antecedents to the context of strategic alliances; and on learning in strategic alliances, by explaining how their governance mechanisms mould distinct sets of entrepreneurial behaviours.

To limit the complexity of our emergent framework, this study has not considered factors external to the strategic alliances that might have influenced their governance mechanisms and their members' learning. Moreover, the study has not shed light on existing differences in necessity entrepreneurs' human capital development *within* each alliance, but only across alliances. We believe that these represent important processes that future research on strategic alliances with necessity entrepreneurs should investigate.

Chapter 5

Governance Mechanisms and Entrepreneurial Learning Among Necessity Entrepreneurs in Strategic Alliances: A Configurational Approach

Abstract

This study adopts a configurational approach to explore how the governance mechanisms of strategic alliances interplay with individual characteristics to influence entrepreneurial learning in necessity contexts. Six conditions are considered for this analysis: 1) perceived intensity of farmer resource-pooling, 2) perceived access to resources 3) perceived distribution of decision-making rights 4) co-learning practices, 5) individual learning practices and 6) farm size. The study finds effective multiple learning pathways for joint development of effectual and causal behaviours and conclude that entrepreneurial learning is complex and a contingent process where each causal factor (governance mechanisms of strategic alliances and smallholder farmer background characteristics) does not exist in isolation, but with interactions. These findings have implications for (re)organising to support entrepreneurial learning among participating male and female necessity entrepreneurs.

Key words: entrepreneurial learning, necessity entrepreneurs, organization, strategic alliances, QCA, Africa

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5.1. Introduction

In increasingly high-risk and turbulent agrifood markets facing a myriad of socio-ecological shocks (Wenzel, et al., 2020), promoting entrepreneurship has emerged as a topic of persistent and lively debate among policy makers, practitioners and scientists (Tobias et al, 2017; Vermeire, et al., 2017; Fitz-Koch, et al., 2018). Accordingly, there is a widespread enthusiasm that fostering entrepreneurial behaviours – which refers to a set of innovative and observable actions of gauging, combining and recombining resources to create value (Gartner et al., 1992; Shane & Venkataraman, 2000), - among specific groups of individuals, such as smallholder farmers can go a long way in tackling these longstanding challenges. Accordingly, evidence suggests that, in necessity contexts, the joint enactment of entrepreneurial logics in the form of effectuation and causation (Sarasvathy, 2001) may represent not only a capacity to meeting basic needs (Bruton et al., 2013; Collier & Dercon, 2014; Sembene, 2015; Naminse & Zhuang, 2018; Wu & Si, 2018; Sutter et al., 2019), but also an ability to mitigate and cope with risks stemming from socio-ecological shocks (McInnis-Bowers et al., 2017; D'Andria et al., 2018; Shirokova et al., 2020).

However, despite this widespread enthusiasm and suggestive evidence on the role of effectuation and causation, little is known about how organisational factors influence the development (which can be sees as a form of entreprenurial learning) of the related behaviours (Markowska, 2010; Fisher, 2012), let alone among different groups of smallholder farmers, such as women who are often characterised by resource constraints and marginalisation (Mair & Marti, 2009; Castellanza, 2020). These characteristics increase the complexity of understanding entrepreneurial learning (Ekanem, 2015; Bloemen-Bekx et al., 2019). Prior research acknowledges the role of gender (Frigotto & Della Valle, 2016; Yang et al., 2020; Pfefferman et al., 2021), farm size (An et al., 2020) and resource endowments (Ruiz-Jiménez et al., 2020; de Jong et al., 2021), among other factors influencing effectuation and causation, yet without paying attention to how these factors combine to influence the development of these behaviours. Similarly, alliance learning (Inkpen & Tsang, 2007; Albers et al., 2016) and organisational entrepreneurship (Hjorth, 2004; Ashton, 2004; Eraut, 2004) literature suggest that governance mechanisms (which refers to the way in which transactions and relationships are governed) may regulate entrepreneurial learning (Lans et al., 2008) among individuals in strategic alliances. Despite these important insights, these streams of research have not yet explored how individual factors combine with governance mechanisms to influence entrepreneurial learning among individuals in necessity contexts.

In addition, previous related research on the drivers of entrepreneurship in general, and entrepreneurial learning in particular, has predominantly used conventional correlational or variance-based theorising which consider individual factors as analytically separable causes of an outcome (Ragin & Fiss, 2008; Douglas et al., 2020) and assume both linear and additive impacts of factors, ignoring the interdependences among variables (Rutten, 2021). However, in practice, the environments in which entrepreneurs operate are complex: factors do not exist in isolation but with interactions (conjunction) to influence an outcome (Urbano & Alvarez, 2014; Díez-Martín et al., 2016; Spigel, 2017; Douglas et al., 2020; Li et al., 2021). Furthermore, correlational theorising focuses at the dominant unifinal *net effects* of each condition, yet there are multiple *equifinal* pathways that can lead to the same outcome which are not captured by net effects (i.e., statistical models). Because of this focus, minority relationships that lie within the data are ignored. Since entrepreneurship phenomena is naturally complex (McKelvey, 2004), one may argue that more relevant approaches such as configurational theorising, which accommodates conjunction and equifinality, are needed to build more influential theories on entrepreneurial learning (Douglas et al., 2020; Furnari et al., 2020).

Against this background, therefore, the overarching research question informing this paper is, 'how do individual characteristics combine with governance mechanisms of a strategic alliance to influence entrepreneurial learning among necessity-based entrepreneurs?' Using qualitative comparative analysis – a comparative case method specifically designed to investigate complex causality (Ragin, 2014), we address this overarching research question by exploring how governance mechanisms of strategic alliances between a Zimbabwean medium-sized private company – Zimbabwe Super Seeds (ZSS) and smallholder farmers (necessity entrepreneurs) in a seed-multiplication business initiative combine with individual factors to trigger entrepreneurial learning (development of effectual and causal behaviours) among different groups of farmers. In this case, ZSS as the focal firm gains access to human and natural capital from several necessity entrepreneurs (in terms of developed seeds production and the time needed to grow and harvest them) in exchange for financial, technological and knowledge resources.

By addressing this question, this paper makes the following contributions. First, from a theoretical perspective, our methodology and findings challenge the previous approaches adopted to understand the drivers of entrepreneurial learning. By adopting a configurational approach, this study is among the few to lay a foundation to which future scholars may advance the analysis of learning towards the development of entrepreneurial behaviours in general and

effectual- and causal-related behaviours. Accordingly, we bring a preliminary understanding on how individual and organisational conditions interplay to influence learning towards the joint development of effectual and causal behaviours from a more neglected necessity-based context. Second, from a managerial standpoint, this paper informs managers of companies and farmer representatives on multiple effective ways of re(organising) to stimulate learning for the joint development of entrepreneurial behaviours. Third, from a policy standpoint, this paper informs policy makers on entrepreneurial development programmes, especially on how to effectively engage or support strategic alliances that seek to involve small actors – both male and female – in their value creation through policy incentives that promote equal participation and access to learning resources.

The remainder of the paper will proceed as follows. We first briefly discuss entrepreneurial behaviour in terms of effectuation and causation and its relevance in building individual's resilience against socio-ecological shocks. Second, we introduce the concept of entrepreneurial learning in organisations, as a theoretical lens to understand learning for the development of entrepreneurial behaviours within organisational contexts. While doing so, we make effort to incorporate the role of gender, farm size, distance to markets and governance mechanisms in understanding entrepreneurial learning. Third, we present and justify the use of QCA in this study. Finally, we present key empirical findings before making a brief discussion on the theoretical contributions and managerial & policy implications of this study.

5.2. Theory

5.2.1. Effectuation and Causation

Effectual logic refers to non-predictive, proactive, emergent, flexible and experimental actions by individuals to deal with the inherent uncertainties of the environment they operate (Sarasvathy, 2001; 2008). Due to this uncertainty, effectual actors focus on what is at hand, controllable and what is affordable in terms of risk. Effectual behaviour does not necessarily adopt a systematic acquisition of information within certain bounds. It is guided by one's identity, building partnerships through interacting with other stakeholders in which resources can be expanded or new goals set together with committed partners. Given what one knows, the uncertain future can be controlled. According to Sarasvathy (2003), effectual logic is most suited in circumstances where uncertainty is the order of the day, where markets are non-existent and where opportunities are not merely discovered but created.

Alternatively, causation logic emphasis on future predictions, strategic planning and mobilising of resources to achieve 'strict' objectives. In this condition, entrepreneurs combine the need to achieve set objectives, profit maximisation and doing away with competition while avoiding surprises from newness (Ansoff, 1965; Mintzberg, 1978; Sarasvathy, 2008). Causal behaviours entails the envisioning of goals, followed by resources mobilisation to meet the intended goals (Chandler et al., 2011). In which case, 'rational choices' are made based on all possible sources of information and expected utility (Mintzberg & McHugh, 1985). Causal behaviours tend to involve predictions, strategic planning, market and competition analysis, resource acquisition and selection of activities based on their potential contribution towards clear goals (Servantie & Rispal, 2018:2018).

Of the existing studies on effectuation and causation, some have explored their observable actions (Fisher, 2012; Servantie & Rispal, 2018), their antecedents (Harms & Schiele, 2012; Alsos et al., 2016; Eijdenberg et al., 2017) and their consequences (Read et al., 2009; Nienhuis, 2010; Roach et al., 2016; Cai et al., 2017), and others have looked at the effects of their joint enactment (D'Andria et al., 2018, Smolka et al., 2013; 2018; Liu, 2019; Shirokova et al., 2020). The later stream of literature suggests that combining both effectual and causal behaviours may help individuals to prepare for, cope with and adapt to socio-ecological shocks. In particular, Smolka et al. (2013) show the income benefits of using the two logics in tandem, and Shirokova et al. (2020) found improved performance for small businesses in Russia during adverse conditions. In addition, a study by D'Andria et al. (2018) demonstrates how the two logics are connected to resilience; which refers to the ability to prepare for, cope with and adapt after a shock.

Despite this breadth of research and suggestive evidence of combining causal and effectual logics, studies that look at how these behaviours develop among different groups of entrepreneurs particularly in necessity-based contexts are rare. While several studies have sought to explore the antecedents of these effectual and causal behaviours, in particular the role of individual backgrounds, such as experiences (Schmidt & Heidenreich, 2018), gender (Frigotto et al., 2016; Yang et al., 2020), resource endowments (Ruiz-Jiménez et al., 2020; de Jong et al., 2021), and firm size (An et al., 2020), how these individual characteristics combine with organisational characteristics to influence the development of these logics have not yet been addressed in literature. In relation to this knowledge gap, various streams of literature suggest that both individual characteristics and the organisational context in which individuals are embedded has implications on their entrepreneurial learning.

5.2.2. Entrepreneurial Learning

Entrepreneurial learning refers to the process through which experience is transformed in to new knowledge (Politis, 2005; Kim, 2009). This knowledge is not only important to effectively perform entrepreneurial activities, but also to cope with liabilities of newness (Politis, 2005), such as overcoming obstacles and leveraging on contingences from socio-economic and ecological shocks (Williams & Vorley, 2014; Liu, 2019). Prior researchers acknowledge that individual experiences are the source of entrepreneurial learning (Kolb, 1984; Hendry, 1996; Corbett, 2005; 2007). At the same time, extant literature suggests that a holistic understanding of entrepreneurial learning needs to consider both the 'learner factors' and 'learning context'. The learner factors refer to the individual characteristics, while learning context refers to the environment in which individuals are embedded (Smolarczyk & Hauer, 2014). However, this line of research has not holistically considered how the combination of governance mechanisms and individual characteristics (i.e., gender and resource endowments) influences entrepreneurial learning, especially in the context of necessity contexts.

5.2.2.1.Gender, Resource Endowments and Entrepreneurial Learning

Several studies suggest that individual characteristics such as their gender and differences in resource endowments explain asymmetries in entrepreneurial learning. While prior studies held a gender-neutral perspective assuming equality between men and woman in entrepreneurial environments, the need for gender consciousness in entrepreneurship has received attention in recent years, with many scholars citing that gender affects access to learning resources and shapes perceptions and therefore experiences (Ettl & Welter, 2010; Li et al., 2021). Several studies suggest that women entrepreneurs face many challenges in their learning compared to their male counterparts (Ekanem, 2015; Welter et al., 2018). For instance, studies by Pathak et al. (2013) and Van Staveren & Odebode (2007) demonstrate that asymmetric institutions treat men and women differently, with the former benefiting more than the later in terms of access to resources and decision-making power. This view is supported by Bryans & Mavin, (2003) who argue that women's position in the organisation may limit their informal learning and restrict development of other skills.

Resource endowments refers to property resources such as farm (firm) size and the location of the farm which collectively affects entrepreneurial participation. The size of the firm captures not only the activities but also the resource endowment and flexibility among farmers (Berends

et al., 2014). Several studies show that firm size is an important determinant of innovation activities. Kahan (2012) considered farm size to be a key determinant of competence development. Choudhury & Easwaran (2019) found farm size to be a prominent attribute for farm entrepreneurship. Specifically, the larger the farm size, the better access the farmer has to use combination of technological packages on the land (Apata, 2015; Morris et al., 2017). Barbieri & Mshenga (2008) show that large farm size facilitates experimentation with different cropping varieties. Similarly, Bergevoet et al. (2005) found positive relationship between entrepreneurial competences and farm size. Relatedly, the literature suggests that distance to market is an important explanatory factor for market participation and therefore learning. Grande et al. (2011) found favourable location of the farm as a key factor for successful entrepreneurs. Given this literature, it is logical to assume that farmers owning large farms which are located close to markets have more learning advantages over farmers who are located far from the markets.

5.2.2.2. Governance Mechanisms and Entrepreneurial Learning

We know from organisational entrepreneurship literature that the way transactions and relationships among a group of people or partners are governed to create, deliver and capture value for and with other actors in a market context may regulate the entrepreneur's learning process and change in behaviour (Hjorth, 2004; Stieglitz & Foss, 2009). Strategic alliance and cross-sector partnership literature would identify these elements in terms of *resource interdependence* and *distribution of decision-making* (Albers et al., 2016; Dentoni et al., 2021). Resource interdependence looks at the exchange of material resources which is important for value creation and capture (Bocken et al., 2013). Second, distribution of decision-making rights entails authority over decisions to plan and implement processes within the organisation (Cohen & Winn, 2007).

Why may such a link between the structure of an organisation and the entrepreneurial behaviour of their members exist? Because according to theory, the way people gain knowledge through transformation of interaction, observations, training and experimentation experiences within an organisation is important to develop a habit or a mindset of exploring new ways or means to achieve goals and thus create value (Lans, et al., 2008; Popova-Nowak & Cseh, 2015). However, this viewpoint is still under researched in strategic alliance context. We therefore look for related literature that may help us to explain how resource interdependence, distribution

of decision-making and learning practices elements of strategic alliances combine with individual characteristics to influence their entrepreneurial learning.

Resource Interdependence: A resource-based view perspective shows that strategic alliances facilitate access to resources which the entrepreneur would otherwise not have (Inkpen & Tsang, 2007). These resources may be in the form of financial, human, physical, natural or social capital. Similarly, extant literature demonstrates that entrepreneurship is closely tied to one's access to resources (Penrose, 1996; Tocher et al., 2015; Welter et al., 2018; Agarwal et al., 2020). This literature suggests that access to different types of resources expand entrepreneurial activities. For instance, access to alliance resources, such as finance and social networks, labour and new technology may increase the capital base of the individual entrepreneur. However, this literature did not explore how resource interdependence – thus, the sharing and accessing of resources – combine with other factors to fluence entrepreneurial learning in strategic alliances.

While studies that attempt to link entrepreneurial learning to resource interdependence are scarce, a synthesis of alliance learning and entrepreneurship literature suggests that when individuals have access to physical and financial resources, they are likely to engage in experimentation activities – thus, many small-scale, trial-and-error activities of recombining resources in new ways to create value (Hampel et al., 2020). This experimentation will facilitate learning by doing. Relatedly, the entrepreneurship as judgement view suggests that access to resources among individuals in an organisation will facilitate decisions to recombine resources in new ways to pursue opportunities (Foss et al., 2019). This judgement facilitates reflection and sense-making. Alliance learning literature, for example, shows that strategic alliances act as a forum of social interaction in which knowledge flow is enhanced. In their study, Sutter et al. (2014), found that social interaction facilitates knowledge exchange among entrepreneurial peers and between entrepreneurs and experts. Similarly, Hinrichs et al. (2004) found that social interaction at farmers' markets facilitates knowledge exchange among participants. Their findings suggest that, facilitated social interaction in strategic alliance may create opportunities to observe, think and reflect on how new information can be applied to own situation. Given these arguments we believe that the entrepreneurs' access to strategic alliance resources is related to entrepreneurial learning.

Distribution of Decision-making Rights: In alliance literature, the distribution of decision-making rights refers to locus of decision-making rights, which spells who holds authority to

direct the implementation of strategic alliance plans and activities (Albers et al., 2016). Put differently, the distribution of decision-making rights relates to the power balances and influence in the day-to-day functioning of the alliance. Prior alliance learning research suggests that the distribution of decision-making in a strategic alliance influences learning (Makhija & Ganesh, 1997; Inkpen & Tsang, 2007), yet without exploring the type of knowledge that is gained and how the distribution of decision rights combines with other factors to influence learning at the individual level.

Nevertheless, a synthesis of extant literature suggests that broader decision rights among individuals in an organisation fosters their learning. In their study, Yan & Child (2002) found positive association between transfer of technology and partner's influence over decision-making. In another study by Lin (2005), it is evident that one's ability to influence decision-making is important to their knowledge acquisition. Similarly, Inkpen & Tsang (2007) argued that knowledge acquisition in strategic alliances is a function of bargaining power. They argued that just by being involved in key issues of the strategic alliance, learning could come naturally because decision rights increase the bargaining power of individuals to learn. Furthermore, Albers et al. (2016) argued that high participation encourages exploration-focused learning, among other things.

In parallel, entrepreneurship literature shows that there is a close tie between the right to asset use and individual entrepreneurship (Foss et al., 2008). This literature suggests that when individuals have narrow decision rights over productive assets and key activities related to their daily business, they are likely to follow routines due to pressures from other actors, such as investors (Wiltbank et al., 2009), in a mechanical way. In this situation, the discretion to act entrepreneurially is limited because other players in the business model (e.g. agribusiness companies) who have more decision rights often put or require upfront instructions on business activities (Ponte, 2010). In other words, there are limits to what an individual can do, as well as when, how, with who, etc. Under such situations where the majority of decision rights are circumscribed by the leaders of strategic alliance, individuals are likely to spend time following procedures at the expense of their experimentation learning. The number, scope and character of such decision rights determines the entrepreneurial process among individuals. Thus, in situations where individuals have wide decision rights over productive assets and key farm business activities, their learning is supported. In relation, the entrepreneurial judgement view would suggest that when individuals have more decision rights, they are more likely to apply their own judgement to new circumstances (Foss et al., 2008). This judgement promotes

entrepreneurial learning and a sustained entrepreneurial experimentation that tends to orient a farmer towards entrepreneurial mindsets. Drawing from this literature, it would be logical to assume that broader decision rights among individuals involved in a strategic alliance is positively related to their entrepreneurial learning.

Learning Strategies: Along with their governance mechanisms, organisations often aim to influence learning through different strategies. These strategies involves processes of individual and co-learning practices within the organisation that develop into knowledge and capabilities (Sosna et al., 2010; Andries et al., 2013; Dentoni et al., 2016), among participants.

Existing entrepreneurial learning literature suggest that entrepreneurial individuals may follow either *individual* or *collective* strategies (or both) in order to acquire business-related knowledge (Lans et al., 2008). Individual learning strategies usually take place in an informal way such as experimenting, trial and error, reflection, observation, asking feedback and reading manuals (Coyle & Ellinger, 2001; Himam, 2017). Collective learning strategy usually takes place in a more organised formal or non-formal way, such as attending business trainings, group learning activities, group reflection and demonstration sessions, among others (Lans et al., 2008). A study by Wells (2014) shows that necessity-based entrepreneurial individuals, particularly women, preferred self-directed learning and integration of their personal experiences. Similarly, Carwile (2009) found that entrepreneurial women engage in a variety of individual learning methods, including trial-and-error experimentation. But in her study of rural micro-enterprise owners in UK, Warren (2004) shows that women considered both collective and individual learning strategies in meeting their learning needs.

In their study of work-related learning among entrepreneurs in the agrifood sector, Lans et al. (2008), found that both individual and collective learning strategies seemed to play important roles in the competence development of enterprising individuals. A study by (Coyle & Ellinger, 2001) explored entrepreneurial women in the United States and found that individual learning strategies in the form of informal networks, trial and error, reflection and expert feedbacks were central to their success. In another study, de Mel et al. (2014) found that exposure to business training programmes was important among entrepreneurial women in Sri-Lanka. Based on this literature, though, we believe that exposure to both collective and individual learning strategies influence entrepreneurial learning in necessity-based entrepreneurial contexts.

Despite this rich body of literature that suggests a plausible link between the governance mechanisms and entrepreneurial learning among individuals in necessity-based contexts (Kessels, 2001; Lans et al., 2008), empirical evidence demonstrating how the governance mechanisms of strategic alliances combine with individual factors (conditions) to influence the joint development of effectual and causal behaviours is lacking, a gap which this study sets to bridge by using a configurational approach.

5.3. Methods

5.3.1. Qualitative Comparative Analysis

Given the complexity of the entrepreneurial phenomena that the study seeks to understand, we choose a configurational approach using QCA to explain how governance mechanisms of a strategic alliance combine with individual conditions to stimulate entrepreneurial learning among entrepreneurial individuals in necessity contexts. In our view, QCA is the most appropriate method in this study, as opposed to linear models, since it takes into consideration that different combinations of conditions can explain a particular outcome (Douglas et al., 2020).

As a set theoretic approach, QCA uses Boolean algebra to treat cases as configurations of putative causal conditions and an outcome and by analysing whether a given condition stands in a subset or superset relationship to the outcome (Schneider & Wagemann, 2012). For example, if farmers that achieve learning outcomes have higher exposure to individual learning strategies, but not all farmers that had high exposure to individual learning strategies have achieved learning outcomes, then the set of farmers who have high exposure to individual learning strategies is a superset of the set of farmers that have achieved learning outcomes. This means that having high exposure to individual learning strategies is a necessary (but not sufficient) condition for achieving learning outcomes. Furthermore, if all farmers with high access to resources achieved learning outcomes but not all farmers that achieved learning outcomes have high access to shared resources, then the set of farmers with high access to resources is a subset of the farmers who have achieved learning outcomes. This means that being a farmer with high access to resources is a sufficient (but not necessary) condition for achieving learning outcomes. Individual conditions are rarely, if ever, sufficient for an outcome, and therefore QCA is designed to identify configuration of conditions (intersections of sets) that explain (are sufficient for) the outcome. QCA (Ragin, 1987) is a difference-making method; it investigates whether the presence or absence of a putative cause (e.g., experience)

makes a difference for the presence or absence of the outcome of interest (e.g., learning outcomes).

QCA is built on the concept of dimensional *conjunctural causation* which assumes that 1) it is the combination of conditions that explain an outcome, 2) that different configurations might *equifinally* lead to the same outcome and 3) that the effect of a condition depends on other conditions in the configuration. As such, one may argue that this configurational perspective reveals fine-grained detail that is enough to disentangle the complexity of entrepreneurial learning among necessity-based entrepreneurs in the context of a business partnership.

5.3.2. Data

This paper relies on survey data to identify the configuration that explains how governance mechanisms combine with the entrepreneurs' individual characteristics to influence entrepreneurial learning among necessity entrepreneurs. The first author, together with two research assistants, administered a survey questionnaire to 419 smallholder farmers between December 2019 and February 2020. These smallholder farmers engage in entrepreneurial activities as they enter a seed-multiplication business initiative to fulfil their basic needs. This business initiative is based on a partnership between smallholder farmers and Zimbabwe Super Seeds (ZSS) - a medium-sized private company. In this business partnership, ZSS as the leading partner provides improved seed varieties to smallholder farmers who contribute with their own land and labour and trains them on how to multiply and store these seeds. Afterwards, ZSS buys these multiplied seeds back from smallholder farmers.

The survey data on learning towards the development of effectual and causal behaviour among necessity entrepreneurs after five years of being involved in the business venture with Zimbabwe Super Seeds, which we refer to as entrepreneurial learning. To capture data on *resource interdependence* of the strategic alliance, we collected data on the perceptions of farmer's own resource-pooling and on access to resources shared by the private partner. For the *distribution of decision rights*, we collected data on the decision-making rights over the use of resources and on key business activities. To capture the learning elements of the business partnership, we collected data on the farmer's participation in individual and co-learning practices. The survey also captured the farmer's background data based on gender, distance to market and farm size. For illustrative purposes, we also relied on observation and qualitative data from a few cases.

5.3.2.1. Outcome Conditions and Calibration

This study explores one outcome regarding the development of entrepreneurial behaviours among different groups of farmers involved in the Zimbabwe Super Seeds business partnership. These farmers were grouped in terms of gender and distance to market. Performing separate QCA-analyses for each group identifies learning strategies that are specific to each group as well as learning strategies that all groups use. This produces a more fine-grained causal explanation than statistical methods are capable of. While it may be interesting to explore effectual and causal behaviours separately, based on the focus of this paper and societal relevance of both effectual and causal (Smolka et al., 2018), the study focusses on learning towards the joint development of the causal and effectual behaviours (EFCA). As such, the study draws from the effectual and causal scale items developed by Chandler et al. (2011) and adapted them to the context of necessity entrepreneurship in the agricultural sector. Accordingly, learning towards effectual behaviour was measured with 11-question items, while causal behaviour was measured with a nine-question items on a five-point Likert scale from 'decreased strongly' to 'increased strongly.' This study uses crisp sets, which means we focus on differences in kind. For example, all farmers have some level of experience, but we only recognise a farmer as experienced beyond a certain threshold of experience. Only beyond that threshold does having experience make a difference for achieving learning outcomes. Also, regarding learning outcomes, all farmers will achieve some level of learning outcomes, but these learning outcomes only impact their performance beyond a certain threshold of learning outcomes. Setting the threshold is called 'calibration'. See below for calibration approaches used for each condition in our study. Furthermore, to have crisp values for learning towards the joint development of effectual and causal behaviours, in cases where there was presence of both effectual and causal behaviour, we convert this to 1 (presence of learning), and where there was no learning or presence of learning for only one of the behaviours, we consider it as 0 (absence of learning).

5.3.2.2. Putative Causal Conditions and Calibration

We consider six conditions to explore configurations that leads to the presence or absence of learning towards the joint development of effectual and causal behaviours. Five of the conditions refer to perceived organisation of the business partnership in terms of resource-pooling (*resourcepool*), access to resources shared by the private partner (*resourceaccess*), distribution of decision rights (*decisionrights*), co-learning experiences (*co-learning*) and

individual learning experiences *(indlearning*), while one of the individual conditions being the size of owned land business use *(farmsize)* (Table 5.1).

First, *resourceaccess* was measured using a 12-item scale that was developed using literature on resource-pooling (Miralles et al., 2017) and tested to the context. Some of the resources were facilitated access to finance, inputs, storage space, processing equipment, transport, payment of water bill, organising tours, knowledge, organising trainings, meetings and field days. This condition was measured on a 5 - point Likert scale where 1 = 'very little extent' and 5 = 'to a greater extent.' Following Hair et al. (2010) on dealing with multivariate data, the possible total score for the perceived extent of resource-pooling will be 60. To come up with crisp values, total scores of more that 30 was converted as 1 = 'high resource access', 0 = 'no high resource access.'

Similarly, *resourcepool* was measured using a 12-item scale that was developed using literature on resource-pooling and tested to the context. This perceived intensity of resource-pooling was measured on a 5 - point Likert scale where 1 = 'Very little extent' and 5 = 'to a greater extent'. The possible total score for the extent of farmer's resource-pooling will be 60. To come up with crisp values, total scores of more that 30 was converted as 1 = 'intense resource-pooling', 0 = 'no intense resource-pooling'.

Third, *decisionrights* was measured using a 24-item scale that was developed and tested to the context before use. Following Hu & Hendrikse (2009) study of allocation of decision rights on contract producers, 12 items covered decision-making over key business in the business partnership. The other 12 items on decision-making rights over the use of productive assets were informed by Slangen et al. (2008). The response items were measured on a 5-point Likert scale where 1 = 'Strongly Disagree' and 5 = 'Strongly Agree'. The possible total score for decisionright**s** will be 120. To come up with crisp values, total scores of more that 60 was converted as 1 = 'broader decision rights', 0 = 'absence of broader decision rights.

Individual leaning opportunities (*indlearning*) in the business partnership was measured using 10 - question items on a 5-point Likert scale where 1 = never and 5 = always. Co-learning opportunities (*co-learning*) in the business partnership was measured using six – question items on a 5-point Likert scale. The possible total score for *indlearning* will be 50, while for *co-learning* will be 30. A total score of more than 25 for *indlearning* means high individual learning experiences and vice versa. Similarly, a total score of more than 15 for *co-learning*

means high co-learning experiences. The total size of land under business use (*farmsize*) was measured in hectares. More than one hectare was categorised as large farm size = 1.

Table 5.1: Data summary

Outcome conditions		
Condition	**Description**	**Source (s)**
1) Effectual behaviour	The extent to which entrepreneurs have changed their levels of experimentation, affordable loss, pre-commitments, flexibility in their business actions	(Sarasvathy, 2001;Chandler et al., 2011; Brettel et al., 2012; Smolka et al., 2013; Shirokova et al., 2020).
2) Causal behaviour	The extent to which entrepreneurs have changed their levels of planning, expected returns, competition, strict goals in their business actions	
3) EFCA	The extent to which entrepreneurs both effectual and causal behaviour have changed in their business actions.	
Causal condition		
Condition	**Description**	**Source(s)**
1) resourcepool	The extent to which partners exchange human, financial, social, physical and natural resources in the context of the business partnership.	(Ménard, 2004;Miralles et al., 2017).
2) resourceaccess	The extent to which necessity entrepreneur can access and use the pooled resources.	(Miralles et al., 2017; (Manyise & Dentoni, 2021).
3) decisionrights	The extent to which decision-rights over the deployment of productive resources and on key business activities is distributed to smallholder business partnership partners.	(Slangen et al., 2008; Hu & Hendrikse, 2009)
4) Co-learning	Group learning practices organized or facilitated by the business partnership such as workshops, look-and-learn tours, demo sessions, field days, etc.	(Lans et al., 2004; Lans et al., 2008).
5) Indlearning	Individual learning practices offered by the business partnership such as experimentation, trial and errors, asking questions, expert feed backs, etc.	
6) Farmsize	The size of owned land under business use.	(Kahan, 2012).

Source: Authors.

5.3.3. Data Analysis

Necessity analysis: For a condition to be necessary, its consistency must be greater than 0.9 and its coverage must be at least 0.7 (Ragin, 2006; Schneider & Wagemann, 2012). Consistency expresses the degree in which, for necessity, the cause is a consistent superset of the outcome, i.e., how many of the cases that have the cause also have the outcome. Coverage of necessity expresses the degree in which the cause is a subset of the outcome, i.e., how many of the cases that have the outcome also have the cause (see Appendix D, Table D.2). For sufficiency, consistency (subset) and coverage (superset) are reversed, although there is no minimum threshold for coverage for sufficiency.

Analysis of sufficiency: QCA yields three types of solution: complex, parsimonious and intermediate. According to Ragin (2008), the complex solution does not allow counterfactuals,

and no simplification occurs. On the other hand, parsimonious solutions are unrealistically simple because they incorporate all counterfactual cases. The intermediate solution is the solution resulting from the reduction of the truth table after incorporating all the logical remainders that the theory suggests would lead to the outcome (Fiss, 2011). In this study, we present the intermediate solution because of its ability to balance between complex and parsimonious solutions (Rutten, 2021). In presenting this solution, we pay attention to two key parameters: consistence and coverage, where the former refers to the empirical relevance of the solution which should be at least 0.25, and the latter quantifies the extent to which cases that share the same outcome lead to the same outcome. Accordingly, a consistency of more than 0.75 is sufficient to indicate goodness of fit and subset relationships (Ragin, 2006) (see Appendix D, Table D.3).

5.4. Empirical findings

Following established structures of displaying QCA results, Table 5.4a and 5.4b report the intermediate solution relating to entrepreneurial learning by gender and distance to market. A black circle indicates the presence of a putative causal condition, while a crisscrossed circle indicates the absence or negation of a causal condition. A black circle, therefore, suggests that a specific organisation or individual condition is part of a path that leads to entrepreneurial learning. Accordingly, Table 5.2a display nine configurations that explain EFCA and Table 5.2b display six configurations that explain ~EFCA among farmers grouped by gender and distance to the market. From the displayed results, the solution coverage of each set of solution explains at least 75% of the empirical cases confirming the empirical relevance of the results. In addition, all configurations have consistency values greater than 0.75, which implies that these configurations are sufficient to explain the presence or absence of entrepreneurial learning.

Table 5.2a: Configurations explaining entrepreneurial learning

Outcome: EFCA	DISTANT TO MARKET					PROXIMATE TO MARKET			
	MALES		FEMALES			MALES		FEMALES	
	1	2	3	4a	4b	1	4a	3	4a
Farm size	●		●	●	●	●	●	●	●
Individual learning		●	●	●	●		●	●	●
Collective learning		●		●	●		●		●
Resource access	●	●	●		●	●		●	
Resource pool	●	●	●	●		●	●	●	●
Decision rights	●	●	●	●	●	●	●	●	●
Raw coverage	0.696	0.348	0.390	0.439	0.561	0.911	0.765	0.771	0.886
Unique coverage	0.457	0.109	0.073	0.122	0.244	0.206	0.029	0.057	0.171
Consistency	0.892	0.842	0.941	0.947	0.958	0.821	0.788	0.818	0.838
Solution coverage	0.804		0.756			0.971		0.943	
Solution consistency	0.861		0.969			0.805		0.805	

Table 5.2b: Configurations explaining absence of entrepreneurial learning

Outcome: ~EFCA	DISTANT TO MARKET				PROXIMATE TO MARKET	
	MALES	FEMALES			MALES	FEMALES
	Ia	Ib	Ic	Id	II	II
Farm size				⊗		
Individual learning						
Collective learning			⊗			
Resource access	⊗	⊗				
Resource pool						
Decision rights	⊗	⊗	⊗	⊗	⊗	⊗
Raw coverage	0.804	0.795	0.474	0.603	0.790	0.756
Unique coverage	0.804	0.141	0.064	0.051	0.792	0.756
Consistency	0.988	0.939	0.974	0.959	0.968	1.000
Solution coverage	0.804	0.949			0.790	0.756
Solution consistency	0.988	0.949			0.968	1.000

Our findings can be synthesised in four main points. First, decision rights represent a necessary condition for entrepreneurial learning among farmers in strategic alliances. Second, entrepreneurial learning is a complex and contingent process that requires the presence of many conditions. Third, distant female farmers are more vulnerable to failure when compared to their

male counterparts. Fourth, small farm-sized and female farmers should resort to individual learning activities for their success in entrepreneurial learning.

5.4.1. Decision Rights as a Necessary Condition for Entrepreneurial Learning

Our QCA results show that a wider set of *decisionrights* is a necessary condition for entrepreneurial learning in all subpopulations, that is independent of their gender and distance from the market (see necessity analysis in annex). Similarly, the absence of a wider set of decision rights (*~decisionrights*) is a necessary condition to explain the absence of the outcome (~EFCA). As an illustration, our qualitative inquiry and observation of a few cases showed that farmers who displayed changes towards both effectual and causal behaviours had a wider set of decision rights in the strategic alliance. For instance, the majority of farmers who were involved in decision making processes, irrespective of gender and distance to the market, reported a new set of behaviours. The following statement from an one farmer who was involved in ley decisions of the alliance illustrates the necessary role of decision rights in explaining entrepreneurial learning in strategic alliances: *Myself I am a committee member, so I am always invited to the meetings in Masvingo. [...]. Because of my position [as committee member], I am always selected among the few who get fertilisers, and sometimes to receive advance payments. [...] I take time to visit other farmers and inspect their fields; I inspect 200 farmers per season. Because of this participation* [in addition to other conditions]*, I have the opportunity to learn from other's success and mistakes. That's our agreement with the ZSS [partner company]. I* [also] *get the opportunity to attend business trainings in Masvingo.* In combination with other conditions*,* this decision to participate in business trainings was instrumental for farmers' entrepreneurial learning. Another farmer who had broader participation said*,* '*I participated a lot* [in decision-making]*. I now know how to write a business plan. I have my vision journey now. I also take time to ask for feedback from the experts, and experiment with my own resources. I have a farm enough for this* [experimenting].'

In contrast, all farmers who displayed neither effectual nor causal behaviours had limited decision rights over strategic alliance activities. In particular, almost all the farmers who displayed neither effectual nor causal behaviours were those farmers who had limited participation in the strategic alliance decision-making processes. As an illustration of Configuration II, proximate farmers with limited decision-making rights had limitations in the entrepreneurial learning. These farmers were shown to have fewer co-learning opportunities, access to resources. This finding suggests that exclusion of farmers in decision-making process of the strategic alliance is a limiting factor for their entrepreneurial learning.

5.4.2. Entrepreneurial Learning is a Contingent Process that is Easier to Fail

The displayed results show that all the four configurations explaining the presence of entrepreneurial learning are complex, while configurations explaining the absence of an outcome (~EFCA) are parsimonious. It is evident that the presence of entrepreneurial learning among all sub-population requires a combination of many factors; it is a highly contingent process. For instance, distant and proximate male farmers share a configuration (I & III) which suggests that to achieve entrepreneurial learning (EFCA), distant farmers should have large *farmsize*, more *resourceaccess*, high *resourcepool* and broader *decisionrights*. As an example, a farmer with his farm located more than 5km from the market and who displayed changes towards effectual and causal behaviours said, '*I know most of the things taking place in the partnership. [...] They* [focal company] *inform and consult me most of the times. [...]. They* [focal company] *are interested to see what I am doing because I have a large farm as well. I am always among the best performers every season. Because of this* [high participation] *I have always received fertilisers, pesticides and seed maize from the focal company. I also share my knowledge and information with other farmers. [...] They* [focal company] *also share advice and support* [with me]. *Their marketing officer is always here to give* [me] *advice'* [male farmer 34]. Consequently, we observed that large *farm size* enabled small-scale on-farm experiments with available resources (*resourceaccess* and *resourcepool*). In other words, having large *farmsize* with a broader *decisionrights* inspired entrepreneur 'risk-taking experiments' with available resources. At the same time, having large farms enabled farmers to become more flexible as they experientially adjusted their actions, taking advantages of the external changes. Additionally, in combination with other governance mechanisms, a large farm provided room for experiential learning through planning and making long-term investments.

On the other hand, configurations explaining the absence of the outcome are (very) parsimonious. The absence of one or two conditions is sufficient to explain the absence of an outcome. For instance, proximate farmers share a very simple configuration (II & VI) which shows *~decisionrights* as a sufficient condition to explain ~EFCA. Distant male and female farmers also share a simple configuration (I & III) which shows that the combination *~resourceaccess* and *~decisionrights* is sufficient to explain ~EFCA. Broadly, these shared configurations suggest that entrepreneurial learning is easier to fail for both proximate and distant farmers. As an illustration of Configuration, I & III, one distant farmer said, '*I always have to rely on begging* [fertilisers and pesticides] *from friends* [who would have received]. *Sometimes I get inputs late. Other farmers may get it in the first batch. [....]. Personally, I have*

never been selected [by the alliance leaders] *to get the fertilisers. I wish they* [alliance leaders] *should allow people like myself to also get it. The problem is that they* [alliance leaders] *do not consult everybody. I always get most of the information though grapevine or after the decision has already been made'* [female farmer 22]. As a result of this lack of resource access and participation in decision-making, the farmer displayed neither effectual- nor causal-related behaviours in their business after five years of participating in the strategic alliance.

5.4.3. Distant Female Farmers are More Vulnerable to Fail

Our results also reveal the vulnerable position of distant female farmers in achieving entrepreneurial learning. First, distant female farmers have three paths to succeed instead of two; however, the coverage is lowest (0.756), suggesting that distant females use a variety of strategies, some not captured in the data. This suggests a disadvantaged position for distant female farmers in their entrepreneurial learning within strategic alliances. In addition, there are two basic paths: Path 1 and 3, and Path 4a and 4b. Path 3 (for females) is more complex than Path 1 (for males). For males, learning is redundant in this path; however, female farmers must also engage in individual learning. This suggests that to be successful in their learning, female farmers need to invest time in individual learning activities. Second, distant female farmers have three paths to failure instead of one. This means it is easier for them to fail, which corroborates their being in a disadvantaged position.

As an example, Configuration III suggests that in combination with *~decisionrights, ~resourceaccess* is sufficient to explain ~EFCA among distant female farmers. For instance, despite having large farm sizes, some female farmers located more than 5km from the Gutu central market complained about their low participation in decision-making sessions related to their partnership. One of the interviewed women who displayed neither effectual nor causal behaviours said, '*I am just a farmer here, my husband is no more [...]. Most of the times I am not invited to the meetings. [...] They just tell me their position. [...]. Because of this* [lack of participation in meetings] *sometimes my name is not on the list of those who get fertilisers. I don't know why* [I am not on the list]. [...] *So, sometimes I just have to rely on my little knowledge'* [woman farmer 3]. As a result of this lack of access to resources and lack of participation in decisions related to their farm business, this woman failed to achieve entrepreneurial learning. As an illustration of Configuration IV, one distant woman farmer confessed that she was not always consulted in matters related to the sharing of resources and at the same time felt excluded from co-learning activities such as learning-tours, demo sessions and trainings. Consequently, the farmer found it challenging to trust her own means and finds

it difficult in setting goals and plan effectively for her farm business. She said, '*Only those in the committee attend the meetings and trainings in Masvingo. They alliance [committee] decide on behalf of us every time. I think they should also give opportunities for women like me to attend meetings. You know those who attend are not always good in disseminating information*' [woman farmer 11]. Furthermore, Configuration V, a woman farmer from Zaka said, *I cannot do much here. [...] If you come to my farm, you can see that it is very small to practice what is shared by those who are selected to attend trainings. My grandfather gave me this plot, and I have to plant other food crops [...]. I have not yet attended any of the meetings, because I am just a single mother. They* [alliance committee] *do not care about us when they choose who to attend those meetings [woman farmer 6].* Taken together, these configurations demonstrate how easy it is for farmers to fail to achieve entrepreneurial learning in strategic alliances.

5.4.4. Small Farm-sized Female Farmers Need Individual Learning Activities

Furthermore, the results also show that all configurations explaining EFCA among distant female farmers are complex, showing, in addition to decision rights, the existence of *indlearning* in all pathways. This finding means that individual learning activities in a strategic alliance context, such as reflection on previous activities, observing the activities of others, experimenting with new inputs and methods, asking questions to experts, receiving feedback, reading business manuals, among others are critical for entrepreneurial learning among female farmers. However, this is only possible when female farmers have large farm plots under business use, are willing to share their own resources, have more access to private partners' shared resources and have a wider set of decision-making rights. As an example, a female farmer located more than 5km from Chikarudzo central market said, *'[...]it is not always easy for* [distant] *farmers, especially poor women. As for me I am a committee member, so I always get the opportunity to attend trainings. Of course,* [at an individual level] *I have to practice what I get from the trainings and also have to share what I have learnt with others because very few individuals are selected to attend. [...]. Even if I have more co-learning opportunities, I still need to learn on my own. I take time to try with other varieties because I have a large piece of land owned by my husband who is working in Harare (city). That's why I am a successful woman'* [committee member].

The later part of the statement exemplifies the importance of individual learning activities among distant woman farmers. On the other hand, absence of a larger farm size, in combination with absence of decision rights among distant female farmers explains absence of entrepreneurial learning. Collectively, this may mean that distant female farmers with small

farm sizes may need to engage in individual learning activities for their entrepreneurial learning, such as reflection, asking for feedback and reading business manuals, among others.

5.5. Discussion

Based on a study of 423 farmers participating in strategic alliances involving a private company and various groups of farmers in rural Zimbabwe, we explore how the governance mechanisms of a strategic alliance combine with individual characteristics to influence farmer's entrepreneurial learning. First, we found that participation in decision-making is a necessary but not sufficient condition for farmer's entrepreneurial learning. Entrepreneurial learning is complex and a contingent process, where each causal factor does not exist in isolation and only 'produces' outcomes in configurations. Second, findings of this study shows that each configuration explaining the outcome (EFCA) in the four subpopulations (distant males, proximate males, distant females, proximate females) includes, in addition to farm size, at least two putative causal conditions related to the governance mechanisms of strategic alliances. This finding underscores the idea that entrepreneurial phenomena is complex (Douglas et al. 2020; Li et al., 2021). However, this study brings empirical evidence and, in our view, from thus-far neglected context of strategic alliances in Zimbabwe, drawing attention to how the governance mechanisms of strategic alliances combine with the entrepreneur's individual characteristics to influence entrepreneurial learning.

Therefore, building upon the notions of entrepreneurial learning in organisations, and more specifically on learning asymmetries, we identify three key issues that speaks that to our understanding of asymmetries in entrepreneurial learning. First, our results demonstrate the necessary role of participation in decision-making (Inkpen & Tsang, 2007; Foss et al., 2019). While prior efforts assume that careful designing of learning strategies (individual and/or collective) is enough for entrepreneurial learning (Lans et al., 2008), findings of this study shows that, without participation in decision-making, learning strategy may not be enough to stimulate entrepreneurial learning. For instance, in all the configurations of both EFCA and ~EFCA, it is evident that decision-making rights are necessary for entrepreneurial learning. This finding is in line with prior research arguing for the importance of participation in decision-making for learning in strategic alliances (Makhija & Ganesh, 1997; Lin, 2005; Inkpen & Tsang, 2007; Albers et al., 2016), yet this study goes beyond to demonstrate that in combination with other factors, participation in decision process is a necessary condition for all entrepreneurial learning pathways. This implies that to support farmers' entrepreneurial

learning; strategic alliances should reorganise to involve their partner smallholder farmer in their decision-making.

Second, our findings speak to gender and asymmetries in entrepreneurial learning (Ettl & Welter, 2010). Results show that there are more pathways to fail for distant women farmers with small farm sizes than their male counterparts, confirming the gendered challenges of entrepreneurial learning observed by Ekanem, (2015) where, in particular, because of their position in organisations, women have more narrow entrepreneurial learning opportunities than men. Furthermore, this viewpoint is supported by many scholars who found many barriers to women entrepreneurship (Raghuvanshi et al., 2017; Panda, 2018; Brush et al., 2019; Wu et al., 2019; Li et al., 2021). However, in addition, our results also show that entrepreneurial learning pathways among distant female farmers in strategic alliances are complex and a contingent process by which they are more likely to fail than their male counterparts. This implies that to support equality in farmers' entrepreneurial learning, strategic alliances should develop tailored learning activities that target women, especially those distant from markets and with small farms.

Collectively, results of this study contribute to existing knowledge on the drivers of effectual and causal behaviours. Although studies have acknowledged the role of combining effectuation and causation in necessity contexts, there has been limited exploration of entrepreneurial learning for the development of these behaviours, particularly among entrepreneurs in contexts of necessity. Our study contributes to this strand of literature by exploring how the governance mechanisms of business partnerships interplay with the individual characteristics to influence entrepreneurial learning. In general, this study provides a nuanced understanding on the development of effectual and causal behaviours among necessity-based entrepreneurs involved in strategic alliances. In addition, this study adds to advancing methodological approaches in effectuation studies. While several studies on the antecedents of effectuation considers a 'single-variable' approach assuming linearity in regressions, which is contrary to the complexity of entrepreneurship phenomena (Douglas et al., 2020), this study bridges this paucity by bringing a configuration-thinking approach. Accordingly, the results of our study demonstrate that understanding the development of entrepreneurial phenomena is complex and requires a configurational thinking perspective.

From a managerial perspective, our findings suggest that strategic alliances should recognise the need for a configurational thinking in their approaches. For instance, to support entrepreneurial learning among farmers, leaders of strategic alliances should involve them in

decision-making in combination with increasing access to resources and ensuring that there is equal participation by all groups, especially taking into consideration the vulnerable position of women. Similarly, to support learning equality, strategic alliances should develop tailored learning activities that target women (especially those distant from markets) and small-size farmers.

5.6. Conclusion

In exploring how governance mechanisms combine with individual conditions to trigger entrepreneurial learning, we found that broader distribution of decision-making rights in the strategic alliances represents a necessary condition for entrepreneurial learning. Furthermore, this paper shows that entrepreneurial learning among individuals in strategic alliances is complex and a contingent process that requires a combination of resource interdependences (resource-pooling, resources access), learning strategies (individual and co-learning practices) and larger farm sizes. The paper further reveals that distant female farmers are more vulnerable to fail than their male counterparts and must rely on individual learning activities for their entrepreneurial learning. This understanding is particularly important for managers and policy makers alike. First, managers can use the findings of this study to reflect upon how to (re)organise strategic alliances in ways that stimulate entrepreneurial learning in all groups of farmers. Second, from a policy standpoint, results of this paper may inform government agencies and practitioners on how to combine suitable incentives to agribusiness companies and their more marginalised partners (necessity entrepreneurs) for reducing inequality between men and women in entrepreneurial learning.

Being aware of the limitations of csQCA, especially the loss of information during calibration (Fiss, 2011; Schneider & Wagemann, 2012), future studies could advance our understanding of entrepreneurial learning using more conservative configurational approaches such as fuzzy set QCA. Second, as an explorative method, future studies using QCA may bring richer insights by combing other qualitative approaches. We also encourage future research to explore entrepreneurial learning in other types of strategic alliances.

Chapter 6

Thesis Synthesis, Discussion, and Implications

6.1. Synthesis of the Thesis Findings

6.1.1. Premise on VCPs, Farmer Entrepreneurship and Outcomes of Agrifood system Resilience

Value Chain Partnerships involving smallholder farmers as part of the value creation process are increasingly common in low-income markets. As collaborative institutional arrangements, they are recognised for their potential to address socio-ecological challenges while remaining commercially viable (Bitzer & Bijman, 2014; Mscba et al., 2016). Depending on their structure, VCPs have potential to effectively support transition towards resilient agrifood systems hence helping to address socio-ecological challenges of food insecurity, poverty, biodiversity loss and the effects of climate change. Considering their potential, research on the impact of VCPs has stimulated a lively debate in several scientific disciplines relevant to agrifood systems. One of the relevant questions in this debate relates to whether, when and how the governance mechanisms of VCPs shape farmer entrepreneurship and support or hamper transition towards resilient agrifood systems in low-income markets. The overarching objective of this thesis was to contribute to this growing scientific debate and provide insights to policy and practice.

Four key limitations in extant literature motivated the design of this thesis. First, despite growing recognition and scientific interest on the role of VCPs in supporting or hampering transition towards resilient agrifood systems, literature to inform whether, when and how the governance mechanisms of VCPs shape farmer entrepreneurship and influence outcomes of agrifood system resilience is so far poorly connected and scattered across several disciplines. While these various literature strands provide valuable insights on the role of VCPs, they do not provide a coherent and parsimonious framework to understand conditions and processes through which governance mechanisms of VCPs shape farmer entrepreneurship and influence outcomes of agrifood system resilience. Second, while the scattered literature suggests that farmer entrepreneurship may support or hamper outcomes of agrifood system resilience, few if any studies have assessed or at least proposed ways to assess farmer entrepreneurial behaviour from a process perspective yet, either at one point in time or with changes over time (i.e., entrepreneurial learning). Third, there is no empirical evidence that illustrate or inform how the governance mechanisms of VCPs shape farmer entrepreneurship and how this in turn relates to outcomes of agrifood system resilience. This is a notable limitation because if VCPs do not organise in ways that do develop their members competences, they will struggle to accomplish their objective of supporting transitions towards resilient agrifood systems. Related to this

limitation, despite flourishing literature on how individuals or groups develop competences and behaviours within organisations, existing literature does not inform us how governance mechanisms combine with background characteristics to stimulate the development of entrepreneurial behaviours. A poor understanding of how the governance mechanisms of VCPs combine with other factors to support entrepreneurial behaviour may lead to dynamics of socio-economic exclusion since certain groups of farmers such as women may lag if VCPs do not tailor their governance mechanisms to their specific needs.

To start addressing these limitations, this thesis set to provide insights on how VCPs can be organized to support entrepreneurship in ways that support outcomes of agrifood system resilience in low-income markets. It does so by taking in to account some relevant, yet underdeveloped, concepts of governance mechanisms, entrepreneurial learning and farmer entrepreneurial behaviour. The rest of this chapter provides a synthesis of the findings, how they extend or expand to existing literature and provide recommendations to stakeholders in and around VCPs.

6.1.2. Research Methods in Relation to Key Objectives of the Study

Given the different types of research questions the study aimed to address, this thesis relied on several research methods common in organisational and entrepreneurship studies. These methods entail the following: i) theory synthesis approach; ii) multivariate statistics, comprising of cluster analysis, exploratory factor analysis (EFA), Welch's analysis of variance (ANOVA) and Pearson's Chi-square test; iii) multiple-case study inductively seeking to compare patterns of causality and explore processes in the data; and iv) a configuration approach in the form of qualitative comparative analysis (QCA), thus a difference-making method to explore and explain complex causality.

First of all, a theory synthesis approach was considered instrumental in order to build a coherent and parsimonious integrative framework since several literature strands on the influence of VCPs on outcomes of agrifood system resilience remains poorly connected and scattered across many disciplines. This method has gained popularity in management studies in recent years (Jaakkola, 2020). First, the approach involves selecting a set of articles that bridge, at least to some extent, the poorly connected strands of the literature by searching across *Google Scholar*, *Scopus* and *Web of Science* search engines for synonyms and dimensions (or features) of the three overarching concepts under study: value chain partnerships, farmer

entrepreneurship and agrifood systems resilience. Second, the method involved looking for points of convergence and divergence within the identified literature, as well as bringing together points that converge. Drawing from the emerging theoretical insights, propositions were developed. This process of developing propositions required a constant reflection with extant literature. When the literature in the context of agrifood was too thin to advance a compelling proposition, the research team resorted to studies outside the agrifood contexts. The theory synthesis approach proved fruitful to bring an integrative framework in Chapter 2, on how the governance mechanisms of VCPs influence outcomes of agrifood system resilience through smallholder farmer entrepreneurship.

Second, in order to explore the dimensions of smallholder farmers' entrepreneurial behaviour, this thesis employed multivariate statistics**.** The use of multivariate statistics is widely common in both organisation and entrepreneurship studies (Crum et al., 2020). For instance, EFA and ANOVA have been used to assess effectuation and causation in several contexts (Chandler et al., 2011; Shirokova et al., 2020). In this thesis, cluster analysis proved useful to group farmers according to their entrepreneurial behaviours and socio-economic & background characteristics. EFA was instrumental to explore and validate the elements of effectuation and causation among smallholder farmers. The differences in entrepreneurial behaviours and socio-economic & background characteristics among identified groups were validated using Welch's ANOVA and Pearson's Chi-square test. The study involved 423 enterprising smallholder farmers entering a seed-multiplication business initiative in the four districts of Masvingo Province, Zimbabwe.

In order to explore how the governance mechanisms of value chain partnerships support or hamper farmer entrepreneurial behaviour and outcomes of agrifood system resilience, this thesis used a multiple-case study using an inductive approach. This method was important to compare patterns of causality within the data and explore the processes linking governance mechanisms of VCPs, entrepreneurial behaviours and livelihoods outcomes of agrifood system resilience. This approach has been widely used in organisation and entrepreneurship studies in recent years (Hahn & Gold, 2014; Galkina & Chetty, 2015; Eisenhardt, 2021). By comparing patterns between governance mechanisms and entrepreneurial behaviours and entrepreneurial behaviours and livelihoods outcomes of agrifood system resilience as well as the connecting processes, this approach reveals fine-grained detail on when and how the governance mechanisms of VCPs influenced entrepreneurial behaviour and outcomes of agrifood system

resilience in each VCP. This study relies on 96 interviews, triangulated with observation notes and secondary data.

Finally, in order to explore how the governance mechanisms of VCPs combine with individual factors (age, gender, distance to the market and farm size) to influence entrepreneurial learning, this thesis study used a configurational approach in the form of QCA. While the use of QCA is gaining popularity in management studies (Douglas et al., 2020; Li et al., 2021), its use on entrepreneurial learning in the contexts of VCPs in low-income contexts is quite new. QCA is premised on the concept of dimensional *conjunctural causation* (Ragin & Fiss, 2008; Ragin, 2014) which assumes that 1) it is the combination of conditions that explain an outcome, 2) different configurations might *equifinally* lead to the same outcome and 3) that the effect of a condition depends on other conditions in the configuration. By using QCA, this study reveals detailed insights to understand how the governance mechanisms of VCPs combine with other factors to influence entrepreneurial learning among different groups of smallholder farmers.

Using these research methods, this thesis provides insights on how VCPs can be organised to stimulate farmer entrepreneurship in ways that support agrifood resilience among smallholder farmers. The next sub-section summarises the key findings of the four studies in this thesis.

6.1.3. Summary of Key Findings

The methods employed in this thesis led to four sets of findings that provide important insights in order to understand the influence of governance mechanisms of VCPs on outcomes of agrifood system resilience through farmer entrepreneurship. These results can be synthesised in four points: VCP pathways of influencing outcomes of agrifood system resilience; effectuation and causation as relevant behaviours to assess farmer entrepreneurship in VCPs; governance mechanisms of VCPs as levers to create space to learn, and configurations of governance mechanisms and individual factors in shaping learning space.

First, Chapter 2 of this thesis provides an integrative framework, corroborated with empirical illustrations, on the linkages between the governance mechanisms of VCPs, smallholder farmer entrepreneurship and the outcomes of agrifood system resilience. Extant literature has suggested several ways in which VCPs can effectively influence resilience in the agrifood system (Reed et al., 2014; Benjamin et al., 2018; Laterra et al., 2019). However, this literature is yet to account how VCPs develop the capabilities needed by actors in the agrifood system, particularly of their more marginalised, to cope with several interacting and cumulative

pressures in the system (Folke et al., 2002; Fazey et al., 2007). Relative to the existing literature, Chapter 2 of this thesis conceptually suggests that the three governance mechanisms of intensity of resource-pooling, distribution of decision rights over the use of resources and coordination mechanism (Figure 2.1) can be re(organised) to stimulate smallholder's farmer entrepreneurship in ways that support agrifood system resilience through three outcomes: sustainable rural livelihoods, conservation & restoration of ecological services and valorisation of socio-cultural services.

Accordingly, the resulting integrative framework in Chapter 2 of this thesis advances four propositions worth empirical testing in future research: i) the higher the intensity of resource-pooling in value chain partnerships, the more smallholder farmers develop entrepreneurial behaviours; ii) the wider the distribution of decision-making rights over pooled resources in value chain partnerships, the more smallholder farmers develop entrepreneurial behaviours; iii) the more balanced the use of formal and informal coordination mechanisms in value chain partnerships, the more smallholder farmers develop entrepreneurial behaviours; and iv) the more smallholder farmers develop entrepreneurial behaviours, the more they support the resilience of agrifood systems. Advancing these propositions, this chapter provides a coherent and parsimonious framework, corroborated with logically supported arguments, on how governance mechanisms of VCPs might shape farmer entrepreneurship and support outcomes of agrifood system resilience.

Second, literature on farmer entrepreneurship shows that there is limited research to assess farmers' entrepreneurial behaviour and how they might influence outcomes of agrifood system resilience, either at one point in time or as a process of change over time. Existing research assessing farmer entrepreneurship has focused on capturing the heterogeneity among farmers based on personal characteristics (Schiebel, 2005; McElwee, 2008), motivation (Agnete Alsos et al., 2003), identity (Vesala & Vesala, 2010; Niska et al., 2012), yet not based on their entrepreneurial behaviour which is important in coping with and adapting to disruptions. Relative to these studies, Chapter 3, of this thesis sought to provide a way of assessing farmer entrepreneurship by exploring effectuation and causation among smallholder farmers in the context of a VCP. Accordingly, the study developed typologies of farmers based on their entrepreneurial behaviours and socio-economic characteristics. This study shows that causation and effectuation behaviours are valid to understand farmer entrepreneurship but required some adaptation to the context of smallholder farmers. Accordingly, this study identifies four uniquely different clusters of farmers with different levels of entrepreneurial behaviours. These

clusters were identified as non-entrepreneurial, goal-driven, means-driven and ambidextrous farmers.

In addition, the identified clusters in this study (Chapter 3) shows significantly different socio-economic characteristics. In particular, clusters displaying higher levels of entrepreneurial behaviours have higher levels of sales and income from farming than their counterparts with low entrepreneurial behaviours. For example, the ambidextrous cluster has higher seasonal farm sales than non-entrepreneurial, means-driven and goal-driven clusters. Similarly, the annual farm income is higher for the ambidextrous cluster than for all other clusters. While the means-driven and goal-driven clusters' have higher farm income and seasonal sales than non-entrepreneurial clusters, both have fewer seasonal sales and annual farm income than the ambidextrous cluster. This finding corroborates previous literature that sought to demonstrate the synergy between effectuation and causation (Smolka et al., 2018; Shirokova et al., 2020). Effectual behaviours help farmers in times of high uncertainty through experimentation with their own means – which the farms can afford to lose – while causal behaviours facilitate aligning priorities with the expectations of other stakeholders, especially in VCPs (D'Andria et al., 2018). Hence, farmers displaying both causation and effectuation behaviours have correspondingly higher annual farm income and seasonal sales. This means that a joint enactment of effectuation and causation among smallholder farmers may have better outcomes and vice versa. Overall, these findings suggest that effectuation and causation represent important entrepreneurial behaviours that help to assess farmer entrepreneurship and different levels of these behaviours might have implications on the outcomes of agrifood system resilience in the context of VCPs.

Third, Chapter 4 of this thesis empirically explores how the governance mechanisms provide space for learning and how they shape causation, effectuation and improve livelihoods as an outcome of agrifood system resilience. First, results of this chapter shows that smallholder farmers support their livelihoods when they develop a combination of causal and effectual behaviours. These behaviours enable smallholder farmers to accumulate and recombine resources in the face of socio-ecological changes. Second, the emerging framework describes the several processes through which (i.e., how) governance mechanisms of VCPs shape smallholder farmers' entrepreneurial behaviours. To be more specific, Chapter 4 reveals that smallholder farmers' entrepreneurial behaviours – i.e., effectuation and causation – were shaped by the intensity of resource-pooling. For example, in cases where VCPs pooled more resources to multiply certified seeds, these resources played an essential role in triggering entrepreneurial

experiments among the majority farmers. This finding corroborates entrepreneurship literature on the influence of access to resources on entrepreneurial behaviours (Sutter et al., 2014; Tocher et al.,2015; Welter et al., 2018; Agarwal et al., 2020). However, in addition, this thesis (Chapter 4) reveals that mandatory resource-pooling (such as frequent inspections, facilitated- access to finance), supports planning for longer-term investments. On the other hand, when the resource-pooling is voluntary, entrepreneurs are more inclined to experiment and improvise based on the local and current circumstances.

Moreover, in line with the integrative framework in Chapter 2, this study (Chapter 4) also reveals that smallholder farmers' the development of entrepreneurial behaviour is influenced by the distribution of decision-making rights. Broadly, this suggestive finding supports the organisational design (Kleinbaum & Tushman, 2007; Kaehr Serra & Thiel, 2019) research, yet in a low-income context we also discovered that the decentralised distribution of decision-making rights supports experimentation with resources at hand more frequently than when decision-making is centralised to leaders of strategic alliances. In centralised distribution of decision rights, for example, smallholder farmers spend time developing business plans and other actions that reinforces causal logics.

Furthermore, Chapter 4 of this thesis also reveals that the formality of coordination mechanisms influences smallholder farmer entrepreneurial behaviour. This finding aligns with existing literature on the influence of formal and informal institutional environments on entrepreneurial actions (De Castro et al., 2014; Yiu et al., 2014; Webb et al., 2014). However, in addition, our exploratory inquiry in Chapter 4 reveals that when smallholder farmers perceive the coordination mechanisms to be highly constrained, they do not engage in entrepreneurial experiments necessary for their learning. Accordingly, in a more formal coordination mechanism entrepreneurs follow routines, while in more informal environment entrepreneurs are more inclined to experiment with available resources. Overall, the framework emerging from our empirical findings suggests that the governance mechanisms of strategic alliances shape their participating smallholder farmers' effectuation and causation, and, in turn, their livelihoods. These structures either create or restrain learning space for smallholder farmers.

Fourth, Chapter 5 of this thesis explores how different governance mechanisms combine with smallholder farmer background characteristics to explain entrepreneurial learning among different groups of smallholder farmers in the contexts of VCPs. This chapter identifies three key issues that speak to our understanding of asymmetries in entrepreneurial learning in VCPs.

First, findings of this chapter show that each configuration explaining the outcome in all subpopulations includes, in addition to farm size, at least two putative causal conditions related to the governance mechanisms of VCPs. This finding underscores the idea that the entrepreneurial learning phenomena is complex (Douglas et al. 2020; Li et al., 2021). Second, this chapter demonstrates the necessary role of decision-making rights for entrepreneurial learning. Relative to prior efforts assuming that careful designing of learning activities is enough for entrepreneurial learning (Lans et al., 2008), findings of this study show that, without participation in decision-making, learning activities may not be enough to stimulate entrepreneurial learning. Additionally, while these findings support scholars arguing for the importance of participation in decision-making (Makhija & Ganesh, 1997; Lin, 2005; Inkpen & Tsang, 2007), Chapter 5 of this thesis demonstrates that in combination with other factors, participation in decision-making processes of a VCP is a necessary but not a sufficient condition for entrepreneurial learning. Instead, broader decision-making rights should be complemented by other factors such as access to resources and larger farm sizes.

Chapter 5 also demonstrate that women are at a disadvantaged learning position in comparison with their male counterparts. For instance, results show more pathways to fail for distant women farmers with small farm sizes than their male counterparts. Moreover, the results of this chapter suggest that to be successful in their learning, female farmers need to invest time in individual learning activities which corroborates their being in a disadvantaged position. These findings corroborates the challenges facing women in entrepreneurship observed in extant literature (Brush et al., 2019; Wu et al., 2019; Li et al., 2021). This means that entrepreneurial learning in VCPs is easier to fail among distant female farmers than their male counterparts. Overall, results of Chapter 5 show that entrepreneurial learning is a complex and contingent process where each causal factor (governance mechanisms of VCPs and smallholder farmer background characteristics) does not exist in isolation, but with interactions.

With these findings, this thesis makes several contributions to different scientific fields. The next sub-sections will reflect upon how this thesis challenges or at least advances scientific knowledge in the fields of entrepreneurship, organisational designing of VCPs and international development.

6.2. Contribution to Literature

6.2.1. Contribution to the Field of Entrepreneurship

First, this thesis contributes to three scientific themes on entrepreneurship in the agrifood system (Fitz-Koch et al., 2018). These themes include contextualising entrepreneurship (Lans et al., 2017; Fitz-Koch et al., 2018; Yousafzai et al., 2019), drivers & roles of entrepreneurship (Bruton et al., 2013; Mupfasoni et al., 2018; Vermeire et al., 2017) and entrepreneurial learning (Minniti & Bygrave, 2001; Lans et al., 2008). Each chapter of this thesis makes at least one contribution to these scientific themes. First, there is a call to bring a contextualised understanding of entrepreneurship. In which case, as described in Chapter 2 of this thesis, an understanding of entrepreneurial behaviour in the agricultural sector remains underexplored (Dias et al., 2019). Although, there are several studies of farmer entrepreneurial behaviour in low-income markets (Rosairo & Potts, 2016; Yaseen et al., 2018; Chipfupa & Wale, 2018; Kangogo et al., 2021), an understanding of process-based perspective in this context is limited. This knowledge gap hinders progress in assessing the drivers and consequences of entrepreneurial process, particularly among smallholder farmers in low-income contexts. Contributing to this call, this thesis (Chapter 3) explores the effectuation and causation entrepreneurial behaviours among smallholder farmers in a low-income setting, with Zimbabwe as a relevant empirical setting. By identifying uniquely different groups of smallholder farmers with different levels of entrepreneurial behaviours and socio-economic and demographic characteristics, this thesis opens an avenue for future research seeking to understand the drivers and consequences of farmer entrepreneurial behaviour from a process perspective. Future research may use the typology in Chapter 3 to assess farmer entrepreneurial process in other low-income contexts and accordingly analyse how they affect outcomes among smallholder farmers.

Second, this thesis contributes to the literature on the drivers and roles of entrepreneurship. Prior studies have extensively debated the drivers (Mupfasoni et al., 2018; Cele & Wale, 2020) and consequences of entrepreneurship (Bruton et al., 2013; Naminse & Zhuang, 2018; Sutter et al., 2019). However, little attention has been paid on how entrepreneurship may explain the influence of VCPs on outcomes of agrifood system resilience. This is despite numerous evidence that entrepreneurship can improve incomes, food security and general welfare in rural areas (Naminse & Zhuang, 2018; Sinyolo & Mudhara, 2018; Bonney et al., 2013). Contributing to this knowledge gap this thesis suggests that farmer entrepreneurship as behaviours that

involves redeploying resources innovatively in and around farms to reduce costs, mitigate risks and increase benefits is a key element to understand how VCPs support resilience of agrifood systems. In particular, by providing an integrative framework (Chapter 2) that links farmer entrepreneurial behaviour to the governance mechanisms of VCPs and outcomes of agrifood system resilience, this thesis bridges a knowledge gap on the organisational drivers of entrepreneurial behaviours and its consequences on addressing socio-ecological challenges. Accordingly, Chapter 4 of this thesis provides empirical richness and sheds light on how entrepreneurial behaviours are shaped by governance mechanisms of VCPs and in turn influence outcomes of agrifood system resilience.

Third, and perhaps more fundamentally, while contributing to the debate on the drivers of entrepreneurial behaviour, this thesis simultaneously advances the view that entrepreneurial behaviour can be fostered among individuals (Minniti & Bygrave, 2001). A growing body of literature attempts to explain how entrepreneurship can be fostered in different contexts through training (Bergevoet et al., 2007; Lourenço et al., 2014), experience (Lans et al., 2004; Ochago et al., 2021) and interaction (Hinrichs et al., 2004) learning. Relative to these studies, this thesis extends knowledge on learning in VCPs (Inkpen & Tsang, 2007) and, more specifically on the development of entrepreneurial behaviours (Foss et al., 2008; Milanov & Fernhaber, 2014; Jiang et al., 2016) by demonstrating that the governance mechanisms of VCPs, in which entrepreneurial activities of smallholder farmers takes place, individually or collectively shape entrepreneurial behaviour. To be more specific, this thesis conceptually (Chapter 2) and empirically (Chapter 4) shows that the governance mechanisms in terms of intensity of resource-pooling, distribution of decision-making rights and coordination mechanism create space for entrepreneurial learning. On the same note, while extant literature suggests the influence of governance mechanisms on learning (albeit without revealing how), this thesis reveals several processes that shape the development of different entrepreneurial behaviours in the contexts of VCPs in low-income markets. In particular, Chapter 4 reveals the governance mechanisms' underlying processes that orient learning for the development of a particular entrepreneurial behaviour. Considering that entrepreneurial learning in VCPs is novel underexplored concept, future research to understand why VCPs influence the development of entrepreneurial behaviour in low-income contexts, may further illuminate how VCPs may be effectively organised to support their members learning.

While the integrative framework in Chapter 2 and empirical work in Chapter 4 argue for a seemingly unidirectional, linear relationship between governance structure of VCP and

entrepreneurial behaviour and entrepreneurial behaviour and resilience, this is a legitimate shortcoming because, as pointed out in Chapter 2, feedback loops may occur along the entrepreneurial behaviour-resilience process or entrepreneurial behaviour-governance structure of VCP process (Figure 2.1). Therefore, future research may address questions with opposite direction, such as how the (limited) resilience of smallholder farmers might shape their entrepreneurial behaviours, or how different levels in entrepreneurial behaviours among smallholder farmers might influence the governance mechanisms of VCPs which seek to include them. In addition, while this thesis suggests that entrepreneurial behaviour influences outcomes of resilience in the agrifood system, studies in other contexts with resilience as an outcome would benefit the field of entrepreneurship.

6.2.2. Contributions to Organizational Studies

Contributing to organisational studies, this thesis first extends organisation theory to a novel and societally relevant setting, that is the context of value chain partnerships between smallholder farmers in rural areas and local agribusiness companies. Organisation theory involves a set of interrelated concepts that seek to understand how transactions, relationships and behaviours of individuals or groups in social units or organisations take place and why they unfold over time. This thesis relied on organisational theories of cross-sector partnerships (Selsky & Parker, 2005; Miralles et al., 2017), collective action (Olson, 1971) and hybrid organisations (Ménard, 2018). VCPs can be seen as a form of hybrid organisation and a cross-sector partnership where several groups of smallholder farmers and a private agribusiness company collaborate to create value. Recently, these theories have been used to understand how an organisation can be organised to stimulate creativity within and outside its boundaries. This thesis builds upon these theories to understand how the VCPs can be organised to support outcomes of agrifood system resilience through farmer entrepreneurial behaviour.

Second, and perhaps more fundamentally, this thesis contributes to organisation design literature, particularly on the organisation of collaborative institutions arrangements – involving multiple stakeholders to address socio-economic challenges. Although many scholars have shown interest to assess the impact of collaborative institutional arrangements (Bitzer & Glasbergen, 2015; Clarke & MacDonald, 2019), relatively few studies have sought to understand how VCPs in low-income markets can be organised to improve their social, ecological and economic value creation (Selsky & Parker, 2005; Gradl & Krämer, 2010). Of the few studies, some have attempted to explain what it means for such organisations to

contribute to resilience, yet without informing how VCPs could be designed to support transition towards resilient agrifood systems in low-income markets. Although these few studies seem to acknowledge that governance mechanisms need consideration (Bouncken et al., 2016; Rosenstock et al., 2020; Dentoni et al., 2021), they do not inform when and how their design could influence processes and outcomes towards resilient agrifood systems. Relative to these studies, this thesis advances the debate by suggesting that VCPs seeking to address socio-ecological challenges in low-income markets should organise in ways that provide space for member entrepreneurship development.

Simultaneously, this thesis challenges existing studies seeking to provide insights for designing effective value chain partnerships in low-income markets (Kelly et al., 2015; German et al., 2018). Given the importance of entrepreneurship for resilience, this thesis argues that the governance mechanisms of value chain partnerships in terms of resource-pooling, distribution of decision rights and coordination mechanism are overarching organisational levers to shape learning space within VCPs. Future organisational design studies may extend this research by exploring how VCPs in different value chains may support or constrain entrepreneurship of their members. Similarly, studies that seeks to challenge this research would enrich our understanding of how governance mechanisms of VCPs may influence agrifood system resilience.

6.2.3. Contribution to Literature on International Development

Finally, this thesis contributes to the scientific field of international development that seeks to understand how the private sector creates (social, economic or environmental) value in low-income markets. First, a growing body of literature focusses on how private-sector-led collaborative initiatives help to address socio-ecological challenges of poverty, food insecurity, biodiversity loss and the effects of climate change (Dentoni & Dries, 2015; Mscba et al., 2016; Scheyvens et al., 2016; Likoko & Kini, 2017). The involvement of smallholder farmers in value chain partnerships and linking them to markets are common themes in scientific discussions on addressing these challenges (Bitzer & Bijman, 2014; Vermeire et al., 2017; Dentoni et al., 2018). Others argue that supporting socio-economic status of smallholder farmers in terms control of land (Gradl et al., 2014; German et al., 2018) and providing them with inputs and credit (Vermeulen & Cotula, 2010) are overarching. Moving beyond market access and input provision, this thesis advances this debate by demonstrating that in order to improve the

outcomes of agrifood system resilience, VCPs involving smallholder farmers should organise in ways that stimulate the development of entrepreneurial behaviours.

One consistent conclusion (Chapter 2 and Chapter 4) is that, depending on the smallholder farmers concerned, VCPs seeking to support the resilience of their members should pool more resources, decentralise their decision-making and balance the use formal and informal coordination mechanism. This insight opens avenues for future research to explore how governance mechanisms of VCPs may influence other intended objectives such as poverty reduction, food security, etc. Accordingly, scholars may question the extent to which governance mechanisms of other collaborative business initiatives seeking to address socio-ecological challenges in low-income contexts support or hinder outcomes of agrifood system resilience outcomes. Addressing such questions could advance our understanding of how private-led collaborative institutional arrangements can help to tackle socio-ecological and economic challenges in low-income contexts.

6.3. Implications for Stakeholders in and Around Value Chain Partnerships

6.3.1. Managerial and Policy Implications on Value Chain Partnerships

The theoretical contributions of this thesis have several implications, especially for those involved in decision-making within and around VCPs seeking to support transition towards resilient agrifood systems in low-income contexts. These implications can be synthesised in three points: implications on supporting farmer entrepreneurship, implications on the organisation of VCPS and implications on assessing, negotiating & communicating value creation in VCPs.

First of all, VCPs in agriculture are inherently about collaborative business initiatives where smallholder farmers are included in the value creation process (Vorley et al., 2009; Sulle et al., 2014; Bitzer & Bijman, 2014; German et al., 2018). However, to foster entrepreneurship and in turn improve outcomes of agrifood system resilience in contexts of resource constraints and uncertainties, findings from this thesis suggest that the governance mechanisms of the VCPs should provide space for developing entrepreneurial behaviour. In line with extant literature, this thesis identifies these governance mechanisms as intensity of resource-pooling, distribution of decision-making rights and in/formal coordination mechanisms. Identifying these governance mechanisms as levers to create space for learning in VCPs implies that developing policies and interventions that seek to promote VCPs as learning environments should be at the

core of resilience building programmes in low-income markets. For example, rather than distributing resources to individual farmers as is the dominant practice in SSA (FAO, 2020), governments and donors might better support smallholder farmers entrepreneurship by increasing resource-pooling in VCPs involving smallholder farmers. This also means that decision-makers within VCPs such as agribusiness managers may need to revisit and reflect upon their governance mechanisms and how this may influence learning of their members. As such, they may need to (re)organise their VCPs not only in terms of supply chain efficiency and market competitiveness, but mainly as learning environments for their smallholder farmer members to develop behaviours of recombining existing resources in creative ways and improve outcomes of agrifood system resilience.

Second, empirical findings from this thesis suggest that fostering farmer entrepreneurship in the form of effectual and causal behaviours should be brought to the core of capacity-building activities in VCPs, for example through trainings, workshops, business clinics and farmer field schools. In doing so, VCPs can effectively act as capacity-building institutions where smallholder farmers can develop useful entrepreneurial behaviours and enhance resilience in the agrifood system. Literature shows that by combining effectuation and causation, entrepreneurs are able to navigate environmental uncertainty while managing scarce resources during an adversity (Smolka et al., 2018; Shirokova et al., 2020). In relation to the findings in Chapter 3 and 4, fostering a combination of effectuation and causation has the potential to improve outcomes of agrifood system resilience among smallholder farmers. This means that entrepreneurship development programmes should tailor their training activities and manuals for farmers to develop both behaviours. Also, in relation to capacity-building activities, the results of Chapter 5 suggest that distant female farmers with small farm sizes find it difficult to develop both effectual and causal behaviours in the absence of informal learning opportunities. This finding implies that entrepreneurship development activities in the context of VCPs could be tailored to the specifics of the farmers concerned, depending on the goals of the VCP. For instance, Chapter 5 of this thesis suggests that in combination with designing learning-friendly governance mechanisms, supporting individual learning activities through providing reading manuals, expert feedbacks, demonstrations, boosting extension support and facilitating social interactions, distant women farmers with relatively smaller farms will be able to develop both effectual and causal behaviours.

Third, this thesis has implications on the way leaders of VCPs in low-income markets demonstrate or communicate value creation. Relative to other collaborative initiatives in low-

income markets, such as innovation hubs or incubators, involving many stakeholders (Selsky & Parker, 2005), VCPs involving smallholder farmers receive relatively less attention regarding their potential to create positive (or negative) social impact (IFC, 2019). Drawing from the findings of Chapter 2 and Chapter 4 of this thesis, leaders of VCPs, especially agribusiness managers seeking to gain legitimacy of their VCPs may assess and communicate value creation in VCPs on the basis of supporting farmer entrepreneurship and changes in outcomes of agrifood system resilience. This way of demonstrating legitimacy might attract further investments from both private or public sources, or to strengthen their governance mechanisms (Tina et al., 2007). Similarly, governments or other sponsors may also legitimise or delegitimise VCPs seeking support based on their potential to support entrepreneurial learning of their marginalised members. Given the challenges in assessing impact of VCPs in supporting transition towards resilient agrifood systems in low-income markers (Rein & Stott, 2009; Drost et al., 2012; Rosenstock et al., 2020), benchmarking VCPs on their potential to support (or hamper) their members' entrepreneurship and livelihood resilience might represent a way for the surrounding stakeholders to legitimise or delegitimise them (Gray & Wood, 1991).

6.3.2. Recommendations for Stakeholders in Value Chain Partnerships

By and large, findings of this thesis inform decision-makers within VCPs, usually managers of agribusiness companies who often with leaders of farmer associations organise the unfolding of activities, processes and relationships reflecting governance mechanisms in the VCPs and other influential stakeholders such as leaders of farmer associations who act as representatives of different groups of farmers, non-governmental organisations and their funding providers. The overarching findings from this thesis informs about the conditions and processes through which governance mechanisms of VCPs provide or restrain space for learning and in turn how the changes in entrepreneurial behaviours influence outcomes of agrifood system resilience among smallholder farmers. In particular, these findings shed light on the link between the governance mechanisms of VCPs, farmer entrepreneurship and the implications on resilience in the agrifood systems, thereby informing stakeholders how to (re)organise VCPs to achieve the desired objective of supporting transition towards resilient agrifood systems.

First, various stakeholders, including leaders of farmer associations and agribusiness managers can use findings of this thesis to negotiate on the effective governance mechanisms of their VCP that support learning for their smallholder farmer members. For instance, being informed that different governance mechanisms create different spaces for learning and in turn different

levels of outcomes of agrifood system resilience, decision-makers can reconsider the governance mechanisms of their VCPs. For instance, depending on their smallholder members' entrepreneurial behaviour, managers of VCPs can shape their behaviours in several ways to support outcomes of agrifood system resilience. In some instances, as revealed in Chapter 4 of this thesis for example, smallholder farmers might engage in low entrepreneurial behaviours, struggling to accumulate resources and recombine them to consistently support outcomes of agrifood system resilience. In these situations, managers have several options to consider. First, they may act on some of the governance mechanisms in the short run (for example pooling more resources or starting to build trust relationships with their smallholder partners), while this also would require continuous focus to achieve results in the long run (e.g., changing formal rules of the partnership to distribute decision-making rights). This combination of short- and long run managerial efforts may be critical to generate necessary change for VCPs to support entrepreneurial learning for outcomes of agrifood resilience. To be more specific, if the VCP aims to increase the abilities to recombine resources in the face of unexpected challenges, managers can support learning to develop effectual behaviour by encourage the pooling of voluntary resources, opt for a more decentralised decision-making processes or more informal coordination mechanisms. Vice versa, if farmers struggle to accumulate resources, managers may influence learning towards the development of causal behaviours by increasing their mandatory pooling of resources through trainings, input provision which facilitates investments.

Furthermore, findings from this thesis suggest that leaders of VCPs need to account for the heterogeneity among different groups of farmers participating in VCPs which may widen inequality in entrepreneurial learning and outcomes of agrifood system resilience, leading to dynamics of socio-economic exclusion. In other words, findings from this thesis, in particular Chapter 3, emphasise that farmers are not equal: they have different socio-economic background characteristics which interplay with their entrepreneurship and outcomes. Chapter 5 of this thesis demonstrates that these differences in socio-economic background among smallholder farmers, such as their gender, distance to market and resources interplay with governance mechanisms and influence their learning. This means that if VCPs fail to account for this heterogeneity in their activities, this may lead to dynamics of socio-economic exclusion. As an example, findings in Chapter 5 show that distant female farmers, with small farm sizes perceived a limited space for learning relative to their male counterparts, unless given more space for individual learning. Being aware of these differences, and in order to support equality

among different groups of farmers, leaders of VCPs such as agribusiness managers and their extension education providers should develop tailored learning activities that target women, especially those distant from markets and with small farms. These learning opportunities could be through providing reading manuals, providing observations opportunities, arranging face to face expert feedback sessions and reflections.

6.3.3. Recommendations for Stakeholders Around Value Chain Partnerships

Along with recommendations for stakeholders in VCPs, findings of this thesis also suggest some possible actions for stakeholders around VCPs. These stakeholders may include policy makers, implementing institutions such as policy brokers, non-governmental organisations and universities. First, depending on their incentives and goals in collaborating, stakeholders outside the VCP boundaries might contribute to alter these governance mechanisms to stimulate smallholder farmers' entrepreneurship development. Public and non-profit actors can put pressure on private companies and other actors leading the VCPs in making the necessary organisational changes. A broad literature suggests that public and non-profit stakeholders can effectively pressure agribusiness companies to make the necessary organisational changes (Ingenbleek & Dentoni, 2016). For example, civil society organisations can monitor and advocate for a decentralised distribution of decision-making rights in strategic alliances to give space for small actors to influence the use of the pooled resources. Similarly, public investors can develop funding structures and policies that encourage the necessary changes in the governance mechanisms of strategic alliances for resilience. On the other hand, NGOs and government may participate by directly pooling the necessary resources to stimulate entrepreneurial learning, for example by providing training or making new technologies available to all farmers (e.g., prototypes of new agricultural inputs, new machinery, data elaboration, etc.)

Second, findings from this thesis informs stakeholder around VCPs on how to support VCPs to influence farmer entrepreneurship and improve outcomes of agrifood systems resilience. Given the link between farmer entrepreneurship and resilience, NGO, extension providers and universities have the chance to deliver entrepreneurship trainings with specific objective of increasing effectual and causal behaviours. Many developing programmes seeking to foster entrepreneurship in SSA do so without understanding how supporting entrepreneurial behaviours may translate into different outcomes. The empirical part of this thesis (Chapter 3 and Chapter 4) reveals the implications of entrepreneurial behaviour on outcomes of agrifood

system resilience. As such, to support the development of effectual and causal entrepreneurial behaviours, these actors can directly contribute to pool the necessary resources, for example by providing training or making new technologies available to farmers and their organisations.

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Yu, X., Tao, Y., Tao, X., Xia, F., & Li, Y. (2018). Managing uncertainty in emerging economies: The interaction effects between causation and effectuation on firm performance. *Technological Forecasting and Social Change*, *135*, 121–131.

ZimStats. (2019). *Zimbabwe Poverty Report 2017*. Zimbabwe Statistical Agency. *May*, 1–160.

Appendices

Appendix A. Chapter 2

Table A.1. List of selected papers reviewed and analysed in chapter 1

Aiken & Hage 1968; Alvarez & Busenitz 2007; Anderson et al., 2006; Ango et al., 2014; Bailey & Buck 2016; Baker & Nelson 2005; Barzola Iza & Dentoni 2020; Benjamin et al., 2018; Bijman & Doorneweert 2008; Bogetoft & Oleson 2002; Chamberlain & Anseeuw 2019; Chandler et al., 2011; Chapin et al., 2006; Cholez et al., 2020; Costanza 2000; Crick & Crick 2018; Cropanzano, R. 2016; Darnhofer et al., 2010; Rae 2017; de Kraker 2017; Dentoni et al., 2018; Dentoni & Krussmann 2015; Dias et al., 2019; du Toit 2011; Foss & Foss 2001; Foss et al., 2007; Gao et al., 2017; Genesis Analytics 2018; Grandori 2013; Hansson & Kokko 2018; Harper 2013; Hinrichs et al., 2004; Hjorth 2004; Holling 1973; Holt & Littlewood 2017; Hu & Hendrikse 2009; Ingenbleek & Dentoni 2016; Jaakkola 2020; Jansen et al., 2005; Kangogo et al., 2020; Kim et al., 2003; Laterra et al., 2019; Lu et al., 2008; Magnan 2012; Mcinnis-bowers et al., 2017; Ménard, C. 2004; Milestad & Darnhofer 2003; Milestad et al., 2010; Miralles et al., 2017; Moller et al., 2020; Narrod et al., 2009; Nelson & Phillips 2018; Niska et al., 2012; Obschonka et al., 2016; Olson 1971; Ostrom 2009; Pindado et al., 2018; Ponte 2010; Reed et al., 2014; Rivera et al., 2020; Rosenstock et al., 2001; Slangen et al., 2008; Šūmane et al., 2018; Thiele et al., 2011; Trienekens 2011; Ungar 2018; van Hille et al., 2019; Vignola et al., 2015; Williams et al., 2019; Wiltbank et al., 2009; Yaseen et al., 2018

Appendix B. Chapter 3

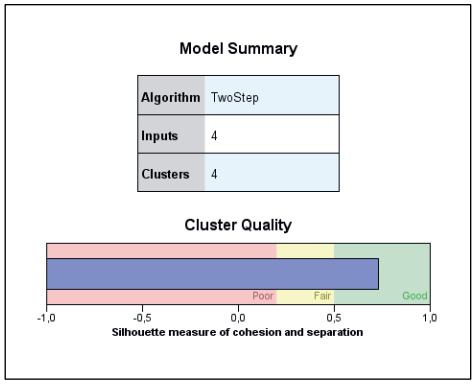

Figure B.1. Cluster Analysis

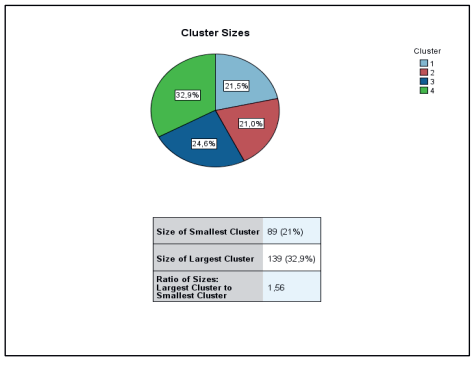

Figure B.2. Cluster sizes

Appendix C. Chapter 4

Table C.1. Qualitative interviews

Go-along Interviews	Interviewees	Number	Number of hrs
	Agro-dealers	4	4
	Ordinary smallholder farmers	26	13
	Farmer association committee members	6	3
	Extension officers	4	2
	Total	**40**	**22**
In-depth Interviews	Company representative	1	1
	Private extension officers	2	1.5
	Farmer association committee members	14	14
	Ordinary smallholder farmers	39	30
	Total	**56**	**46.5**

Table C.2. Operationalization of causation behaviour

Causation levels	Characteristics
Low causation	Most of the farmers lack understanding of business planning. Most of the farmers have no intention to invest in future farm business. Farmers have a distrust in trying new farm businesses with their own means. No emphasis on farm goal & target setting and achievement. Farmers have no idea of profit calculations and maximisation in their business.
Medium causation	Most farmers are now able and sometimes use farm business plans in their projects. Most farmers are now relying on profit and loss calculations for prioritising farms enterprises. Most farmers prioritise expected returns on their farm businesses Most farmers are now able to set farm goals and targets. Majority of the farmers keep farm records as a reference
High causation	Almost all farmers in the association use business plans in their farm business e.g., seasonal plans, and plans to borrow from credit providers. More emphasis is placed on profit potential of an enterprise always. Business is considered as profit and profit is business. Farmers rely on the profit and loss calculations made before the start of the enterprise, e.g., some farmers do this exercise as a group. In these partnerships farm record keeping is considered an important farm activity for reference purposes. Goal setting and achievement is embraced by all farmers, every farmer has a "vision journey" in writing.

Table C.3. Operationalization of effectuation behaviour

Effectuation levels	Characteristics
Low effectuation	Most of the farmers are hopeless with existing and starting new farm enterprises. Most of the farmers are not flexible to the variability in whether patterns, e.g., some quit farming and migrate. Farmers have a distrust in their own means of production. Farmers have no interest to try out with new techniques, seed varieties and inputs.
Medium effectuation	Farmers have intentions to be adjust and adapt to the changes. Intention to experiment with new production methods and seed varieties. Farmers have intention to try out with a few resources (money] they can afford to lose. Farmers demonstrate some flexibility action in adjusting their activities to the environmental changes. Farmers have some trust on own means in starting new farm enterprises. Some farmers experiment with new seed varieties, technology and inputs.
High effectuation	Most farmers have trust with own means, e.g., savings from the previous enterprises, in starting new farm businesses. Most farmers experiment with new seed varieties, technology and production methods. Farmers in these partnerships demonstrate flexible behaviour- working out ways to adapt and adjust to the changes in environment. Most farmers try out with own resources they can afford to lose.

Table C.4. Operationalization of livelihoods resilience levels

Livelihood outcomes	Characteristics
Low	Income from farm business is still very low for majority of the farmers. Most farmers are not able to purchase even low value assets from farming. Farmers are only able to meet basic household needs. Most farmers have low access, availability and dietary diversity: low food & nutrition security level
Medium	Some farmers have high income from farm business to supplement other income sources. Farmers are able to buy low-value assets such as farming tools which they can use to generate extra income. Farmers are able to meet other household expenses such as education expenses, and emergences. Some farmers have high availability, food access and dietary diversity: higher food & nutrition security
High	Very high income from farming business and farming is now a reliable source of household income. Farmers are now buying high value assets from farming such as livestock, houses, cars which they can sell during a crisis to meet expenses. Farmers are able to meet all household expenses such as education for their children and other family needs These farmers have acquired income generating skills and are now using income from farming to start other income-generating projects.

Appendix D. Chapter 5

Table D.1. Calibration of variables for crisp set QCA

Putative causal conditions	Decision rights: less than 60 Likert scores = 0, At least 60 Likert scores = 1 Resource pool less than 15 Likert scores = 0, At least 15 Likert scores = 1 Resource access: less than 30 Likert scores = 0, At least 30 Likert scores = 1 Co-learning: less than 15 Likert scores = 0, At least 15 Likert scores = 1 Individual learning: less than 30 Likert scores = 0, At least 30 Likert scores = 1 Farm size: At least 1 ha, Less than 1 ha = 0 Gender: Male = 1, Female = 0
Outcome condition: changes in causal and effectual behaviour	First scale: Did you perform the behaviour already. Strongly disagree, disagree and neutral are 0. Agree and strongly disagree are 1. 0 = did not [activity] do at start 1 = did do [activity] at start For the first group (0: did not do activity), greatly decreased slightly decreased and stayed the same, means, they did not learn anything. So, these farmers a get 0 for learning. For the first group (0: did not do activity), increased slightly, increased greatly, means they did learn something. So, these farmers get a 1 for learning. For the second group (1: did do activity), stayed the same, increased slightly, increased greatly, means they did learn something. So, these farmers get a 1 for learning. For the second group (1: did do activity), greatly decreased, slightly decreased, means they did not learn anything. So, these farmers get a 0 for learning.

Table D.2. Analysis of necessary conditions

	Male distant (148 cases)				Male proximate (72 cases)				Female distant (119 cases)				Female proximate (80 cases)			
	Effectcausal		~Effectcausal		Effectcausal		~Effectcausal		Effectcausal		~Effectcausal		Effectcausal		~Effectcausal	
Conditions	**Consist.**	**Cov.**	**Consist.**	**Cov.**	**Consist.**	**Cov.**	**Consist.**	**Cov.**	**Consist.**	**Cov.**	**Consist.**	**Cov.**	**Consist.**	**Cov.**	**Consist.**	**Cov.**
landsize	0.847826	0.348214	0.715686	0.651786	1.000000	0.478873	0.973684	0.521127	0.829268	0.414634	0.615385	0.585366	1.000000	0.443038	0.977778	0.556962
~landsize	0.152174	0.194444	0.284314	0.805556	0.000000	0.000000	0.026316	1.000000	0.170732	0.189189	0.384615	0.810811	0.000000	0.000000	0.022222	1.000000
indlearning	0.891304	0.317829	0.862745	0.682171	0.941176	0.463768	0.973684	0.536232	0.975610	0.353982	0.935897	0.646018	0.971429	0.447368	0.933333	0.552632
~indlearning	0.108696	0.263158	0.137255	0.736842	0.058824	0.666667	0.026316	0.333333	0.024390	0.166667	0.064103	0.833333	0.028571	0.250000	0.066667	0.750000
co-learning	0.434783	0.333333	0.392157	0.666667	0.794118	0.509434	0.684211	0.490566	0.682927	0.405797	0.525641	0.594203	0.771429	0.540000	0.511111	0.460000
~co-learning	0.565217	0.295455	0.607843	0.704545	0.205882	0.368421	0.315789	0.631579	0.317073	0.260000	0.474359	0.740000	0.228571	0.266667	0.488889	0.733333
resourceaccess	**0.934783**	**0.693548**	0.186275	0.306452	**0.970588**	**0.717391**	0.342105	0.282609	0.780488	0.666667	0.205128	0.333333	0.914286	0.627451	0.422222	0.372549
~resourceaccess	0.065217	0.034884	0.813725	0.965116	0.029412	0.038462	0.657895	0.961538	0.219512	0.126761	0.794872	0.873239	0.085714	0.103448	0.577778	0.896552
resourcepool	0.913043	0.471910	0.460784	0.528090	1.000000	0.596491	0.605263	0.403509	0.853659	0.437500	0.576923	0.562500	1.000000	0.514706	0.733333	0.485294
~resourcepool	0.086957	0.067797	0.539216	0.932203	0.000000	0.000000	0.394737	1.000000	0.146341	0.153846	0.423077	0.846154	0.000000	0.000000	0.266667	1.000000
decisionrights	**0.934783**	**0.860000**	0.068627	0.140000	**0.970588**	**0.804878**	0.210526	0.195122	**0.878049**	**0.947368**	0.025641	0.052632	**1.000000**	**0.760870**	0.244444	0.239130
~decisionrights	0.065217	0.030612	**0.931373**	**0.969388**	0.029412	0.032258	0.789474	0.967742	0.121951	0.061728	**0.974359**	**0.938272**	0.000000	0.000000	0.755556	1.000000

Table D.3. Analysis of sufficient conditions

Category	Outcome	Configuration	Raw cov.	Unique cov.	Consist.	Solution cov.	Solution consist.
Male distant from market	Effectcaus	landsize*resourceaccess*resourcepool*decisionrights	0.695652	0.456522	0.842105		
		indlearning*co-learning*resourceaccess*resourcepool*decisionrights	0.347826	0.108696	0.842105	0.804348	0.860465
	~Effectcaus	~resourceaccess*~decisionrights	0.803922	0.803922	0.987952	0.803922	0.987952
Male proximate to market	Effectcaus	landsize*resourceaccess*resourcepool*decisionrights	0.941176	0.205882	0.820513		
		landsize*indlearning*co-learning*resourcepool*decisionrights	0.764706	0.029412	0.787879	0.970588	0.804878
	~Effectcaus	~decisionrights	0.789474	0.789474	0.967742	0.789474	0.967742
Female distant from market	Effectcaus	landsize*indlearning*co-learning*resourceaccess*decisionrights	0.390244	0.073171	0.941176		
		landsize*indlearning*co-learning*resourcepool*decisionrights	0.439024	0.121951	0.947368		
		landsize*indlearning*resourceaccess*resourcepool*decisionrights	0.560976	0.243902	0.958333	0.756098	0.96875
	~Effectcaus	~resourceaccess*~decisionrights	0.794872	0.141026	0.939394		
		~co-learning*~decisionrights	0.474359	0.064103	0.973684		
		~landsize*~decisionrights	0.602564	0.051282	0.959184	0.948718	0.948718
Female proximate to market	Effectcaus	landsize*indlearning*co-learning*resourcepool*decisionrights	0.771249	0.057143	0.818182		
		landsize*indlearning*resourceaccess*resourcepool*decisionrights	0.885714	0.171429	0.837838	0.942857	0.804878
	~Effectcaus	~decisionrights	0.755556	0.755556	1.000000	0.755556	1

Appendix F. Questionnaire

A SURVEY ON ORGANISATION OF BUSINESS PARTNERSHIPS AND ENTREPRENEURSHIP AMONG SMALLHOLDER FARMER IN MASVINGO PROVINCE, ZIMBABWE

OSMARE aims to understand how business models that integrate CSA interventions influence smallholder resilience in South-East Africa. The project is registered with Wageningen University & Research in The Netherlands. As a smallholder farmer in agribusiness partnership with Zimbabwe Super Seeds, you have been randomly selected to form part of this survey.

To be able to complete this questionnaire, think about your business partnership with Zimbabwe Super Seeds and related farm business activities. If you have any contractual forms related to the partnership, have them available. The questions are not technical. There is no right or wrong answer, but such documents will make it easier to respond to the questions.

Your participation is voluntary. However, we encourage you to complete all parts of the questionnaire. The information gathered here will be kept anonymous and strictly confidential. Your name or farm will not be mentioned anywhere in our reports. Data obtained from this study will be used for academic and no further usage.

Expected time for completing this questionnaire is 15-20 minutes. We appreciate your valuable time in completing this questionnaire

SECTION A: BACKGROUND INFORMATION

1. The following question relate to your background information about yourself. *Please tick or fill in the following blank spaces provided.*

a) **Name of the respondent** (Optional) .....

b) Sex Female ☐ Male ☐

c) Date of Birth .....

d) Marital status Single ☐ Married ☐ Widowed ☐ Separated ☐

e) District Masvingo ☐ Bikita ☐ Zaka ☐ Rusape ☐ Gutu ☐

f) Ward Number ..... **g) Member of association** Yes ☐ No ☐

h) If so, name of association .....

i) Role in association Chairperson ☐ Secretary ☐ Committee member ☐

Treasurer ☐ Simple member ☐ Other (specify) _____

j) **Highest education you hold** ECD ☐ Primary ☐ Secondary ☐ High school ☐

1 year certificate ☐ 2-year Certificate ☐ Bachelor's degree ☐

Master's degree ☐ Doctorate Degree ☐

k) Household size (present at least 5 days a week) .....

l) Number of household active adults (15-64years) .....

m) Distance to the market (km**)** .....

n) Number of friends who own a farm business .....

2. The following questions relate to the background information about your income sources. *Please tick or fill in the blank spaces provided*

a) Number of household income sources.....

b) Main income source (Tick one only) Farm business ☐ Formal job ☐

Informal job ☐ Remittances ☐ Other ☐

a) Estimated total household income in 2018 .....US$.....

3. The following questions relate to your land use and ownership. *Please tick or fill in the blank spaces provided.*

a) Year of joining the partnership.....

b) Reason for joining the partnership.....

c) Total size of owned land (ha) (including communal) .....

d) Total size of owned land under business use (ha).....

e) Total size of borrowed land under business use (ha).....

f) Total size of rented land under business use (ha).....

g) Number of crops cultivated per year.....

h) Main farm businesses

Maize seeds ☐ Butternuts ☐

Sorghum ☐ Cow peas ☐

Sugar beans ☐ Pear millet ☐

Ground nuts ☐

4. The following questions relate to your crop yields and sales under ZSS partnership during the past 3 years. *Fill in the spaces provided.*

4.1. Crop output per year.

Crop	2016 (in Kgs)	2017 (in Kgs)	2018 (in Kgs)
a) Maize seeds			
b) Butternuts			
c) Sorghum			
d) Cow peas			
e) Sugar beans			
f) Pear millet			
g) Groundnuts			

4.2. Crop sales per year.

Crop	2016 (in Kgs)	2017 (in Kgs)	2018 (in Kgs)
a) Maze seeds			
b) Butternuts			
c) Sorghum			
d) Cow peas			
e) Sugar beans			
f) Pear millet			
g) Groundnuts			

SECTION B: ORGANISATION OF THE BUSINESS PARTNERSHIP

5. The following statements indicate <u>your</u> contribution to the partnership, and whether this is voluntary or compulsory.

5.1. In this business partnership, I			5.2. This contribution is		5.3. Indicate to what extent is this contribution in relation to overall contribution. Small extent=1, Some extent =2, Moderate extent=3, Great extent =4, Very great extent=5				
	No	Yes	Voluntary	Compulsory	1	2	3	4	5
a) Pay a membership fee.	☐	☐	☐	☐	☐	☐	☐	☐	☐
b) Help to look for finance sources.	☐	☐	☐	☐	☐	☐	☐	☐	☐
c) Contribute with production equipment.	☐	☐	☐	☐	☐	☐	☐	☐	☐
d) Contribute with harvesting equipment.	☐	☐	☐	☐	☐	☐	☐	☐	☐
e) Contribute with storage space.	☐	☐	☐	☐	☐	☐	☐	☐	☐
f) Contribute with land to the partnership.	☐	☐	☐	☐	☐	☐	☐	☐	☐
g) Contribute with water management	☐	☐	☐	☐	☐	☐	☐	☐	☐
h) Contribute with labour	☐	☐	☐	☐	☐	☐	☐	☐	☐
i) I share my knowledge with others.	☐	☐	☐	☐	☐	☐	☐	☐	☐
j) Help to organise trainings.	☐	☐	☐	☐	☐	☐	☐	☐	☐
k) Help to organise meetings.	☐	☐	☐	☐	☐	☐	☐	☐	☐
l) Help to organise field days	☐	☐	☐	☐	☐	☐	☐	☐	☐

6. The following statements indicate the contribution <u>of the agribusiness company</u>, and whether this is voluntary or compulsory

6.1. The agribusiness company.....			6.2. This contribution is		6.3. Indicate to what extent is this contribution. Small extent=1, Some extent =2, Moderate extent=3, Great extent =4, Very great extent=5				
	No	Yes	Voluntary	Compulsory	1	2	3	4	5
a) Facilitate access to finance.	☐	☐	☐	☐	☐	☐	☐	☐	☐
b) Contribute with finance.	☐	☐	☐	☐	☐	☐	☐	☐	☐
c) Contribute with inputs.	☐	☐	☐	☐	☐	☐	☐	☐	☐
d) Contribute with storage space.	☐	☐	☐	☐	☐	☐	☐	☐	☐
e) Contribute with processing equipment.	☐	☐	☐	☐	☐	☐	☐	☐	☐
f) Contribute with transport	☐	☐	☐	☐	☐	☐	☐	☐	☐
g) Help in paying my water bill	☐	☐	☐	☐	☐	☐	☐	☐	☐
h) Organise learning tours for me	☐	☐	☐	☐	☐	☐	☐	☐	☐
i) share knowledge with me.	☐	☐	☐	☐	☐	☐	☐	☐	☐
j) organise trainings for farmers	☐	☐	☐	☐	☐	☐	☐	☐	☐
k) organise meetings.	☐	☐	☐	☐	☐	☐	☐	☐	☐
l) organise social events e.g., Field days.	☐	☐	☐	☐	☐	☐	☐	☐	☐

7. **The following statements relate to the decision making and participation in your business partnership. Indicate to what extent you agree with them** (Strongly disagree=1, Disagree =2, Neutral=3, Agree =4, Strongly agree=5)

7.1. I believe that the partnership gives me the choice on....

		1	2	3	4	5
a)	Business activities I undertake.	☐	☐	☐	☐	☐
b)	Inputs I use in my farm business.	☐	☐	☐	☐	☐
c)	Production technology I use.	☐	☐	☐	☐	☐
d)	Planning my daily activities.	☐	☐	☐	☐	☐
e)	Production methods I use.	☐	☐	☐	☐	☐
f)	Harvesting and processing of my produce.	☐	☐	☐	☐	☐
g)	Selling of my produce.	☐	☐	☐	☐	☐
h)	Transportation of my produce.	☐	☐	☐	☐	☐
i)	Price negotiation.	☐	☐	☐	☐	☐
j)	Maintaining membership to the partnership.	☐	☐	☐	☐	☐
k)	Participation in trainings.	☐	☐	☐	☐	☐
l)	Participation in social events (e.g., field days).	☐	☐	☐	☐	☐

7.2. I believe that the partnership gives me choice on....

		1	2	3	4	5
a)	Suggesting the frequency of meetings with buyer	☐	☐	☐	☐	☐
b)	Deploying shared resources in my farm business.	☐	☐	☐	☐	☐
c)	Deciding what to grow in my field.	☐	☐	☐	☐	☐
d)	Suggesting changes on the terms of partnership.	☐	☐	☐	☐	☐
e)	Initiating changes in the use of shared resources.	☐	☐	☐	☐	☐
f)	Suggesting on selling and renting of resources.	☐	☐	☐	☐	☐
g)	Transferring my membership to someone.	☐	☐	☐	☐	☐
h)	Deciding on the pricing of my produce.	☐	☐	☐	☐	☐
i)	Deciding the compensation of my shared resources.	☐	☐	☐	☐	☐
j)	Giving an opinion on excluding membership of others	☐	☐	☐	☐	☐
k)	Deciding for other farmers to be denied entry.	☐	☐	☐	☐	☐
l)	Deciding on who should attends partnership events	☐	☐	☐	☐	☐

8. **The following statements relate to the relationships with your private business partner (company) in the partnership.** *Please indicate to what extend you agree with them.* (strongly disagree =1, disagree =2, neutral =3, Agree=4, strongly agree = 5

8.1. In this partnership....

		1	2	3	4	5
a)	Most of our business dealings do not have formal agreements.	☐	☐	☐	☐	☐
b)	We mostly use verbal words in our dealings.	☐	☐	☐	☐	☐
c)	Our relationship mostly based on friendship	☐	☐	☐	☐	☐
d)	Our business dealings are mostly concluded with simple arrangements.	☐	☐	☐	☐	☐
e)	From my experience, I mostly rely on my partners' verbal promises.	☐	☐	☐	☐	☐

8.2. In this partnership....

		1	2	3	4	5
a)	We use mostly written words in our dealings.	☐	☐	☐	☐	☐
b)	The written content of the contract is given priority in our dealings.	☐	☐	☐	☐	☐
c)	We always rely on the written contract to address problems in our business partnership.	☐	☐	☐	☐	☐
d)	Our relationships are stipulated in the contract.	☐	☐	☐	☐	☐
e)	We refer to the contract whenever a dispute arises.	☐	☐	☐	☐	☐

8.3. In this partnership....

		1	2	3	4	5
a)	I feel that our terms of contract satisfy all the aspects of our relationship.	☐	☐	☐	☐	☐
b)	I feel that our contract provides a clear direction needed for our relationship.	☐	☐	☐	☐	☐
c)	I feel that our contract does not provide room for cheating.	☐	☐	☐	☐	☐
d)	My business partners always act in accordance with our agreements.	☐	☐	☐	☐	☐
e)	My partners always fulfil their promises	☐	☐	☐	☐	☐
f)	We friendly solve together the problems that arise in our business partnership.	☐	☐	☐	☐	☐
g)	We always maker changes to our terms of relationship together when necessary.	☐	☐	☐	☐	☐
h)	When some expected situation arises, we always work out a new deal together.	☐	☐	☐	☐	☐

SECTION C: ENTREPRENEURIAL LEARNING EXPERIENCES AND FARM BEHAVIOUR

9. Consider the time you joined Zimbabwe Super Seeds partnership and indicate by ticking the appropriate box on how often you engaged in the following activities and learn something new to improve your farm business.

1=*Never,* **2**= *rarely,* **3**= *sometimes,* **4**=*often,* **5**= *always*

9.1. **Since joining the ZSS partnership, how frequently did you deliberately.....**	1	2	3	4	5
a) reflect on your previous farm business experiences and actions.	☐	☐	☐	☐	☐
b) experiment with new farming techniques.	☐	☐	☐	☐	☐
c) learn through own trial and error.	☐	☐	☐	☐	☐
d) observe activities of other farmers in the partnership.	☐	☐	☐	☐	☐
e) searched new information using the internet.	☐	☐	☐	☐	☐
f) read books and publications provided by the partnership.	☐	☐	☐	☐	☐
g) attended conferences and meetings organised by the partnership.	☐	☐	☐	☐	☐
h) interacted with other farmers who are members of the partnership.	☐	☐	☐	☐	☐
i) asked for feedback from experts in the partnership.	☐	☐	☐	☐	☐
j) asked questions to the company marketing officer at any time.	☐	☐	☐	☐	☐

9.2. **Since joining the ZSS partnership, how frequently did you attend ----------**					
a) 'look and learn' tours organised by the partnership.	☐	☐	☐	☐	☐
b) field days organised by the partnership.	☐	☐	☐	☐	☐
c) demonstration activities organised by the partnership.	☐	☐	☐	☐	☐
d) seed fares facilitated by the partnership.	☐	☐	☐	☐	☐
e) training programmes facilitated by the partnership.	☐	☐	☐	☐	☐
f) business workshops facilitated by the partnership.	☐	☐	☐	☐	☐

10. First, can you think about your decision making and action when you started your farm business. Indicate the extent to which you agree with the statements by crossing with X on the boxes provided. Second, after 3 years of being in the ZSS business partnership and learning new things, I would like you to think about your decision making and action if you are to start another farm business right now. Indicate to what extent you will change your previous actions.

10.1. When you started your farm business, what was your starting point of action?						**10.2. Indicate the extent of changes to your starting point of action if you are to start a new farm business**				
	Strongly Disagree	disagree	Neutral	Agree	Strongly Agree	Decrease greatly	Decrease Slightly	Stay the same	Increase Slightly	Increase greatly
a) I planned farm business strategies to find necessary resources	☐	☐	☐	☐	☐	◯	◯	◯	◯	◯
b) I laid down my farm business goals for the farm before I started.	☐	☐	☐	☐	☐	◯	◯	◯	◯	◯
c) I focussed on available resources to find achievable farm goals.	☐	☐	☐	☐	☐	◯	◯	◯	◯	◯
d) I allowed imagined farm business goals to evolve over time.	☐	☐	☐	☐	☐	◯	◯	◯	◯	◯
e) I experimented with different farm production methods on my farm.	☐	☐	☐	☐	☐	◯	◯	◯	◯	◯
f) I tried several inputs until I find the most suitable for my farm.	☐	☐	☐	☐	☐	◯	◯	◯	◯	◯
g) The farm production methods that I ended up using changed substantially from the first imagined.	☐	☐	☐	☐	☐	◯	◯	◯	◯	◯

10.3. What was important for you when you compared different options for your farm?						**10.4. Indicate the extent of changes in comparing different options if you to start a new farm business**				
	Strongly Disagree	disagree	Neutral	Agree	Strongly Agree	Decrease greatly	Decrease slightly	Stay the Same	Increase slightly	Increase greatly
a) I focussed on what I was willing to lose.	☐	☐	☐	☐	☐	◯	◯	◯	◯	◯
b) I focussed on minimum potential farm risks.	☐	☐	☐	☐	☐	◯	◯	◯	◯	◯
c) I focussed on maximum potential returns.	☐	☐	☐	☐	☐	◯	◯	◯	◯	◯
d) I focussed on my profit calculations.	☐	☐	☐	☐	☐	◯	◯	◯	◯	◯

10.5. What was your attitude towards third parties when you started your farm business?						**10.6. Indicate the extent of changes to your attitude towards third parties if you are to start a new farm business**				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Decrease greatly	Decrease slightly	Stay the same	Increase slightly	Increase greatly
a) I looked for cooperation	☐	☐	☐	☐	☐	◯	◯	◯	◯	◯
b) I tried to get contracts (with farm input suppliers and customers/buyers) to reduce the amount of uncertainty.	☐	☐	☐	☐	☐	◯	◯	◯	◯	◯
c) I did a competitive analysis.	☐	☐	☐	☐	☐	◯	◯	◯	◯	◯
d) I focussed on identifying market risks.	☐	☐	☐	☐	☐	◯	◯	◯	◯	◯

10.7. How did you deal with surprising events and unexpected changes when you started your farm business?						**10.8. Indicate the extent of changes to your dealing with surprising events and unexpected changes if you are to start a new farm business**				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Decrease greatly	Decrease Slightly	Stay the same	Increase Slightly	Increase greatly
a. I adapted my farm activities to the available resources (e.g., skills, finance, land).	☐	☐	☐	☐	☐	◯	◯	◯	◯	◯
b. I avoided taking directions that limited my flexibility.	☐	☐	☐	☐	☐	◯	◯	◯	◯	◯
c. I took advantage of opportunities as they arose.	☐	☐	☐	☐	☐	◯	◯	◯	◯	◯
d. I focussed on reaching farm targets without any adjustments.	☐	☐	☐	☐	☐	◯	◯	◯	◯	◯
e. I used my farm business strategies to deal with surprises and unexpected changes.	☐	☐	☐	☐	☐	◯	◯	◯	◯	◯
f. I only integrated surprising results and changes when the original option was at risk.	☐	☐	☐	☐	☐	◯	◯	◯	◯	◯

Thank you for your time

Summary

In today's increasingly turbulent and rapidly changing agrifood systems, the role of collaborative institutional arrangements in tackling long-standing socio-ecological challenges of food insecurity, poverty, inequality, biodiversity loss and climate changes represents a topic of persistent and lively debate among policy makers, civil society and scientists. However, what remains controversial in this debate is the role governance mechanisms of these collaborative institutional arrangements play in supporting resilience in local agrifood systems. To contribute to this debate, this thesis seeks to provide insights on how value chain partnerships, as a form of collaborative institutional arrangements involving private companies, smallholder farmers and other stakeholders can be organised in ways that stimulate entrepreneurship and support outcomes of agrifood system resilience.

Contributing towards this overarching research objective, this thesis addresses four key limitations in extant literature. First, literature on how governance mechanisms of value chain partnerships shape farmer entrepreneurship and support or hamper resilience in agrifood systems is poorly connected and scattered across several disciplines: lacking a coherent and parsimonious framework. Second, there is little empirical research on how governance mechanisms of value chain partnerships provide space for developing entrepreneurial behaviours overtime, and how entrepreneurial behaviours in turn influence outcomes of agrifood system resilience. Similarly, few studies have explored how governance mechanisms of value chain partnerships individually or collectively interplay with individual's attributes to shape the development of entrepreneurial behaviours. Along with these three limitations, there is limited research assessing farmer entrepreneurship in terms of effectuation and causation behaviours in resource constrained and turbulent rural contexts, either at one point in time, or their development over time.

In order to address these four limitations, this thesis is organised in six chapters. Chapter 1 sets the scene for this thesis. The chapter starts by giving a general introduction to the study, discussing the challenges facing local and global agrifood systems, with a particular focus on sub-Saharan Africa. In doing so, the chapter identifies and delineates the main research question, describes how it fits in the current debate on value chain partnerships and agrifood system resilience, before laying a theoretical framework and outline of the thesis.

Chapter 2 uses a theory synthesis approach to provide a conceptual framework on how value chain partnerships can be organised in ways that stimulate farmer entrepreneurship and support agrifood system resilience. Relying on searching for literature across search engines – *google scholar, Scopus and Web of science* – to explore how the three concepts: governance mechanisms, farmer entrepreneurship and resilience, relate with each other; this chapter results in an integrative framework, corroborated with illustrations. This framework suggests that the governance mechanisms of value chain partnerships in terms of intensity of resource pooling, distribution of decision-making rights and a combination of formal and informal coordination mechanisms influence farmer entrepreneurship. In turn, farmer entrepreneurship supports the resilience of agrifood systems through three outcomes: improved rural livelihoods, valorisation of socio-cultural services, ecological services.

Given the lack of research in assessing farmer entrepreneurship in resource constrained and turbulent rural contexts of low-income markets, chapter 3 explores farmer entrepreneurial behaviour in terms of effectuation and causation. Relying on data from 430 smallholder farmers involved in a seed multiplication business initiative, this chapter uses multivariate statistics in the form of exploratory factor analysis, Cluster analysis, Pearson's chi-squared test and Analysis of Variance. Findings of this study touch upon our understanding of entrepreneurial behaviour in resource-constrained and turbulent rural contexts. Second, this chapter reveals that smallholder farmers are heterogenous in terms of their entrepreneurial behaviours. Four clusters were identified: non-entrepreneurial, goal-driven, means-driven and ambidextrous. Along with entrepreneurial behaviours, these clusters differ significantly in terms of demographics, education levels, farm size, distance to the market, social connections, seasonal sales and farm income.

Relying on data from 96 interviews, chapter 4 uses a multiple-case study design in the form of inductive data analysis to explore the processes and patterns of causality between the governance mechanisms of seven value chain partnerships and changes in causation and effectuation behaviours of smallholder farmers, and in turn how changes in these behaviours relate with their livelihood resilience. Contributing to addressing the overarching research question, this partnership-level analysis reveals three insights: first smallholder farmers sustain their livelihood resilience when they develop a combination of effectual and causal behaviours; second, smallholder farmers develop causal behaviours when value chain partnerships involve mandatory resource pooling, centralised decision making and formal coordination mechanism. Vice versa, smallholder farmers develop effectual behaviour when value chain partnerships

configure voluntary resource pooling, decentralised decision making and informal coordination mechanisms. In addition, the chapter inductively reveals processes through which causal and effectual behaviours were shaped, and in turn how these behaviours influence their livelihood resilience.

To understand how governance mechanisms of value chain partnerships individually or collectively interplay with the individual farmer's attributes to shape the joint development of causal and effectual behaviours (entrepreneurial learning), chapter 5 uses a configurational analysis in the form of Qualitative Comparative Analysis QCA – a set theoretic approach used to distil complex causality. The chapter relies on survey data from 423 smallholder farmers involved in seven value chain partnerships in Zimbabwe. The chapter reveals finer grained insights which speaks to our understanding of entrepreneurial learning in value chain partnerships. First the chapter reveals that entrepreneurial learning is complex, and a contingent process, where each causal factor does not exist in isolation but with interactions. In particular, the chapter demonstrates that participation in key decision-making processes over the use of resources and key activities of the partnership is a necessary but not always a sufficient condition for entrepreneurial learning. In addition, this chapter demonstrates that entrepreneurial learning is easier to fail for distant female entrepreneurs than their male counterparts.

Finally, by synthesizing and discussing the key findings of the four studies, chapter 6 reveals how the four studies in this thesis challenge or at least extend existing debates in the scientific fields of entrepreneurship, organisation of value chain partnerships and international development. Based on the scientific contributions, this chapter discusses policy and managerial implication before making recommendations for stakeholders in and surrounding value chain partnerships. First, findings of this thesis have implications on how value chain partnerships communicate value creation in low-income markets; suggesting that leaders of value chain partnerships or external stakeholder such as donors or government may demonstrate legitimacy of a value chain partnership based on the potential to support farmer entrepreneurship. Second, findings of this thesis have implications on entrepreneurship development suggesting that fostering effectual and causal behaviours should be brought to the core of capacity-building among smallholder farmers. Third, rather than distributing resources to individual farmers, governments and donors might better support smallholder farmers by pooling resource on or strengthening institutions of existing value chain partnership they are part of. With these implications, this thesis suggests stakeholders in value chain partnerships

such as agribusiness managers and leaders of farmer associations to make necessary changes and support farmer entrepreneurship based on the identified organisational levers. Similarly, stakeholders surrounding value chain partnerships such as non-governmental organisations, policy brokers, governments and donors may put pressure on leaders of value chain partnerships in making necessary organisational changes. This can be through advocacy and designing funding structures that recognise the governance mechanisms of value partnerships concerned.

About the author

Timothy Manyise was born on the 5th of January 1984 in Ndanga District of Masvingo in Zimbabwe. He completed Ordinary and Advanced Level education at Nyabata High School in 2003 and 2005, respectively. In January 2008, he enrolled for a BSc degree in Agribusiness Management at University of Venda in South Africa. After completing a bachelor's degree in 2011, he proceeded to enrol for an MSc degree in Agriculture, specialising in Agricultural Economics at the same university.

During this time, he served as a lecturer assistant and tutor of various courses in agricultural economics and business management. He also served as a facilitator of community-led development projects in South Africa. After completing his MSc, Timothy worked as a consultant under a capacity development consulting firm in South Africa. Determined to broaden his understanding of agrifood systems and international development, in 2015 Timothy was awarded the Erasmus Mundus Joint Master's degree Scholarship by the European Union, to pursue a mobility programme: International Master of Science in Rural Development, coordinated by Ghent University, Belgium in partnership with Humboldt University of Berlin, Germany; University of Pisa, Italy; Agri-campus Quest, France; and Slovak University of Agriculture in Nitra. It is during this time that Timothy became more interested in understanding multi-stakeholder-led development and rural socioeconomics. Upon completing the IMRD degree, Timothy enrolled as a PhD Candidate in Business Management and Organisation Group with the financial support of OSMARE project funded by NWO (Dutch National Research Council) in cooperation with CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Timothy's research interests include cross-sector partnerships, adaptive business models, entrepreneurship, resilience, food security, systems thinking and rural development. His study focused on how value chain partnerships can be organised in ways that support outcomes of agrifood systems resilience in low-income contexts. Timothy hopes to combine academic and more practical tasks in future to inform policy and practice. He can be reached at manyisetim@gmail.com

Timothy Manyise
Wageningen School of Social Sciences (WASS)
Completed Training and Supervision Plan

Name of the learning activity	Department/Institute	Year	ECTS*
A) Project related competences			
A1 Managing a research project			
Research proposal writing	WUR	2018	6
WASS Introduction Course	WASS	2018	1
Scientific writing	WGS	2018	1.8
”Value Chain Partnerships, entrepreneurship and climate resilience: An African agriculture sector perspective”	EGOs Conference, held in Hamburg, Germany, as an online version	2020	1
”Linking Organizational Structures to Entrepreneurial Learning: The case of Zimbabwe Super Seeds“	WASS PhD Day, Wageningen University	2021	0.5
“Linking Partnership Structures and Learning Processes to Causation and Effectuation in Necessity-based Entrepreneurship”	SMS Conference, held in Toronto, Canada, as an online version	2021	1
A2 Integrating research in the corresponding discipline			
Research Methodology from topic to proposal	WASS	2018	4
Quantitative Data Analysis: Multivariate Techniques, YRM-50806	WUR	2020	6
Academic publication and presentation in the social sciences	WASS	2019	4
B) General research related competences			
B1 Placing research in a broader scientific context			
Advanced qualitative research design & data collection, GEO 55804	WUR	2019	6
Co-organising workshop *'Understanding and working with(in) a complex adaptive system'*	OSMARE	2019	1
Stakeholder mapping and capacity building exercise	OSMARE	2020	1
Ethics for Social Sciences Research	WGS	2019	0.5
B2 Placing research in a societal context			
Making an Impact! How to increase the societal relevance of your PhD research	WGS	2018	1
C) Career related competences/personal development			
C1 Employing transferable skills in different domains/careers			
Research Data Management	WGS	2018	0.45
Efficient writing strategies	WGS	2019	1.3
Searching and Organising Literature (formerly: Information Literacy including EndNote Introduction)	WGS	2018	0.6
Total			**37.15**

*One credit according to ECTS is on average equivalent to 28 hours of study load

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