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Pathways to Inclusion:
Evidence from Zambia's Subsidy Program and Farmer Organisations

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SLE

The Centre for Rural Development (SLE) is affiliated to the Albrecht Daniel Thaer Institute for Agricultural and Horticultural Sciences in the Faculty of Life Sciences at the Humboldt-Universität zu Berlin. Its work focuses on four strands: international cooperation for sustainable development as a post-master degree course, training courses for international specialists in the field of international cooperation, applied research, and consultancy services for universities and organisations.

The objective of the research project "INICO-Inclusion in Cooperatives" is to analyse how inclusion processes unfold in the context of local farmer organisations in sub-Saharan Africa. For the purpose of this paper, Zambia provides the empirical background. The country offers a particularly interesting case as farmer organisation are typically involved in the implementation of the national Farmer Input Support Programme that aims at delivering maize inputs to vulnerable farmers at subsidised prices. To date, the effects of such a program on inclusion mechanisms at organisational level has received scant attention in the research literature. The project forms part of the doctoral theses of the two authors and has been supported by the Centre for Rural Development and the Förderverein of the Humboldt-Universität zu Berlin. The authors also thank Katasha Sinyangwe and Mercy Changwe for their technical support.

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Abstract

The UN's Sustainable Development Goals highlight the need for inclusive development, though the concept of inclusion remains difficult to grasp in the development literature. Previous studies have treated inclusion as an outcome or steady state, while its prerequisites and mechanisms remain obscure. Here, we explore inclusion processes, using primary data from Zambian farmer organisations (FOs) involved in the implementation of the national agricultural input subsidy program. We apply a novel method for qualitative comparative case analysis to identify necessary and sufficient conditions for the inclusion of disadvantaged households in FOs. The results show that different combinations of factors may lead to inclusion and that three out of four explanatory conditions lead to inclusion only in combination with each other. These multiple conjunctural effects imply that inclusion processes are much more complex than often depicted and that future research needs to find ways to capture these complex causalities.

Key Words

Inclusive development; Farmer organisation; Input subsidy program; Qualitative Comparative Analysis (QCA); Program targeting

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1 Introduction

Inclusion has recently emerged as a key concept in international development (Khan, 2012; World Bank, 2013). Against the background of past experience, it has developed from the perception that social and economic benefits gained from development are often unequally distributed across societies and may even deepen or perpetuate social inequalities (Harasty et al., 2015; Thurlow and Wobst, 2006). In this context, inclusion is considered a useful tool to improve the participation of disadvantaged households in development (Cook, 2006). Understood as 'participation in development', inclusion is becoming a core component of regional and global strategies, including the United Nations' Sustainable Development Goals, with their claim to 'leave no one behind' (UN, 2016, 2017), as well as the strategy of the African Development Bank to promote inclusive growth in Africa (AfDB, 2013).

Despite this growing interest, however, it remains unclear how the concept may be fruitfully applied in practice (de Haan, 2011; Pouw and Gupta, 2017). Although previous studies have proposed inclusion to be a preferable developmental outcome (A. Fischer, 2011), they have been limited to a static assessment of the effectiveness of policies to reach their target groups, with far too little discussion on the causal mechanisms involved. Until now, there have been few attempts to empirically investigate the institutions and underlying processes (de Haan, 2015; Kabeer, 2000) that can promote or impede participation of disadvantaged households so as to improve our knowledge on how inclusive development may be fostered.

Therefore, this paper is a first attempt to conceptualise inclusion processes in local institutions. We apply the concept to Zambia's Farmer Input Support Program (FISP): one of the largest agricultural subsidy programs in Sub-Saharan Africa. Compared to other programs, which mostly use voucher systems, FISP identifies and reaches its beneficiaries through local farmer organisations (FOs; Jayne and Rashid, 2013). Although previous studies have suggested that FISP does not fully reach its target groups and, rather, that inputs are diverted to better-off farmers (Mason et al., 2013), the role of FOs in reaching the rural poor has not been investigated. Here, we use a novel method for comparative case analysis to study local inclusion processes under FISP, seeking to contribute towards the literature on inclusive development in three ways. Firstly, we want to enhance our understanding of the inclusion concept and offer supporting evidence for its validity. Secondly, we add to the scarce literature on FISP implementation in Zambia and, finally, hope to provide important insights on the potential contribution of FOs towards inclusive development.

The next section presents conceptual considerations before discussing the state of inclusion in Zambia's subsidy program and proposing an analytical framework to study inclusion in its FOs. Section three introduces our qualitative comparative analysis method, case selection and operationalisation, whereas section four presents our results and section five discusses them and offers conclusions.

2 Inclusion Concept and Empirical Background

2.1 Conceptual Considerations

Inclusion can be broadly described as a means for improving 'participation in society for people who are disadvantaged on the basis of age, sex, disability, race, ethnicity, origin, religion, or economic or other status, through enhanced opportunities, access to resources, voice and respect for rights' (UN, 2016:20). Thus, the concept of inclusion describes a complex social phenomenon that remains relatively abstract and difficult to grasp (de Haan, 2011; Pouw and Gupta, 2017), which may be a reason for its poor acceptance amongst researchers, resulting in a gap of supporting empirical evidence for it. At least three conceptual challenges have also contributed to this state of affairs.

Firstly, the concept has two meanings, either understanding inclusion as a static and desirable outcome or as a process that takes place between different actors in society (A. Fischer, 2011). Researchers have tended to prefer the first meaning, as it can be measured against predefined indicators and by means of standardised quantitative methods. Most commonly, such studies analyse to what extent different types of groups are present in a respective program (Khan, 2012). A major problem with this kind of application of the concept, however, is that the results generated do not usually provide any meaningful insights regarding the underlying mechanisms that contribute to the outcomes found. Thus, it seems important to complementary use a process-oriented approach to explain how formal and informal rules of inclusion operate (Hickey, 2007).

A second challenge for researchers and policy-makers alike is to identify individuals who are at risk of being excluded from development opportunities (World Bank, 2013). Due to high levels of deprivation in many developing societies, it is not always clear who is more disadvantaged, relative to others (Sen, 2000). In many cases, it is not enough to compare individuals against their relative incomes; rather, a more contextualised and relational approach needs to be taken, as whether or not individuals are included or excluded often depends on their position in society. This bears the risk of some individuals dominating others. Inclusion may be able to correct for unequal power relations, but it may also require some form of proactive behaviour towards individuals who lack the resources to fully participate on their own (Khan, 2012). In practice, such processes are shaped by local institutions that define the formal and informal rules of social interaction that are uniquely embedded in societies (de Haan, 2015; Kabeer, 2000). Therefore, researchers need to concretely adapt and refine measurement strategies to empirical contexts.

Finally, it is important to emphasise that inclusion processes and outcomes are shaped at multiple levels. Abbott et al. (2017) differentiate between micro, meso and macro levels of inclusion, which correspond to individual, institutional and citizenship rights. However, these levels are also interlinked. For example, the allocation of public goods and services does not always strictly follow administrative rules (Kabeer, 2000), and large-scale subsidy programs are no exception to this. Their design is often prone to elite capture and, consequently, inclusion effects may become lost during their implementation (Jayne and Rashid, 2013). As a result, national targets and local processes may end up being misaligned.

Altogether, these conceptual considerations are intended to explain why studying inclusion remains a challenge and show that researchers need to navigate through contesting applications, meanings and levels to apply the concept. It is thus not surprising that multiple understandings of inclusion continue to coexist. For the purposes of this paper, we understand inclusion as 'the removal of institutional barriers and the enhancement of incentives to increase the access of diverse individuals and groups to development opportunities' (World Bank, 2013:256). We feel that a variety of reasons make this definition a good fit. Firstly, it understands inclusion as a process rather than focusing solely on outcomes. Secondly, it implies that some form of pro-active behaviour to remove a barrier or to increase incentives can lead to inclusion. Finally, the definition clearly states the intention behind the inclusion process, which is to provide access to some form of development opportunity, an objective that generally coincides with the intentions of targeted-subsidy programs.

2.2 Contextualising Inclusion: Zambia's Agricultural Subsidy Program

2.2.1 Government Targets and Inclusion Outcomes

Zambia is located in Southern Africa and is well endowed with natural resources and relatively favourable climatic conditions. The country is categorised as land- and water-abundant relative to other countries in the region, and the majority of the population lives in rural areas with agriculture being their main source of income. Subsistence farmers, who cultivate on average 2.1 hectares of land and dedicate almost all resources towards maize production, dominate the agricultural sector (IAPRI, 2016). But, there is a visible gender divide where female-headed households cultivate smaller fields (48 versus 27 percent of female-headed households cultivate less than one hectare, 80 versus 61 percent cultivate less than two hectares), have lower maize yields (1.9 versus 2.2 kg per hectare), earn less (9,000 versus 20,000 Zambian Kwacha gross annual income) and are more likely to be poor (85 versus 76 percent headcount) than their male counterparts (ibid). Overall, agricultural production is considered to be lagging far behind its potential, with food and nutritional security issues remaining alarmingly high.

Some argue that the country's overdependence on mineral resources has impeded agricultural development (Üllenberg et al., 2017). As of 2016, Zambia held the second and ninth largest copper reserves in Africa and the world, respectively (Statista, 2017, https://www.statista.com/statistics/273637/copper-reserves-by-country). Thus, cooper production has historically evolved as the country's economic backbone and induced an early urbanisation process, making it today one of the most urbanised countries in Sub-Saharan Africa. Historically, this has put additional pressure on the agricultural sector to supply the growing urban population with enough food at affordable prices, leaving the country with a long history of large-scale agricultural or credit subsidy programs to promote agricultural production, rural incomes and food security. Because maize is both the main staple and commercial crop, it has been highly politicised, with associated subsidies being used to ensure electoral votes (Mason et al., 2013, 2017).

Zambia's subsidy program is targeted towards vulnerable but viable farmers and, accordingly, applies a set of eligibility criteria to decide who should be included within the program. The current FISP targets those considered to be vulnerable but viable farmers who cultivate 0.5 to 5 hectares,

can prove membership in a FO, are no defaulters of previous credit programs and do not concurrently benefit from the Food Security Program (MAL, 2014a). As such, FISP targets households that are normally disadvantaged in accessing commercial inputs due to their high costs, transaction costs and absent credit markets. By seeking to lower these costs for a large number of disadvantaged households, the FISP design qualifies it as an inclusive development program.

In reality, however, FISP is a rationed program, meaning that subsidies are insufficient to serve all eligible farmers. It turns out that around 30 percent of all smallholder households in the country receive FISP support, of which only 79 percent actually fulfil the eligibility criteria (Mason et al., 2013, Appendix). An increasing body of literature suggests that targeting is not perfect and often does not properly identify disadvantaged households. Mason et al. (2013) find that this results in input diversion towards better-off farmers, who tend to cultivate larger fields and are less likely to be poor. With more subsidies going towards better-off farmers, the effect of FISP on production levels, maize prices and poverty reduction has been marginal so far (Mason and Smale, 2013; Mason and Tembo, 2015; Ricker-Gilbert et al., 2013). As a result, rural poverty rates have remained persistently high at around 78 percent (IAPRI, 2016), while national inequality, as measured by the GINI coefficient, has even increased over the past years (UNDP, 2016).

2.2.2 Program Implementation and Farmer Organisations

Since the early 2000s, there has been a new wave of African subsidy programs with highly diverse forms of implementation (Jayne and Rashid, 2013). Whereas targeted subsidy programs in Malawi, Tanzania or Kenya are based on voucher schemes, Zambia's FISP program has delegated implementation to local FOs. By involving them, policy-makers have been expecting to increase social capital that could, in the long run, hopefully translate into viable self-help groups that could offer additional services to their members (Lolojih, 2009). As such, FOs provide the institutional link between FISP and individual farmers and may generate patterns of inclusion and exclusion (Kabeer, 2000).

To participate in FSIP implementation, FOs need to be fully registered and active for at least one year in crop production and have written bylaws and a standing executive committee (Kodamaya, 2011; MAL, 2014a). They are involved in different steps of the implementation process but most importantly for our purpose here, FOs preselect potential FISP beneficiaries from amongst their members and have them approved by the Camp Agricultural Committee.[1] Following a positive Committee decision, FOs then collect and manage FISP upfront payments for inputs. The FISP operates on a cost-sharing basis, meaning that it reduces the retail cost of fertiliser, by for example up to 79 percent during the 2011/12 agricultural season (Mason et al., 2013). Beneficiaries are then required to make upfront payments to cover the remaining costs. After liabilities are cleared, FOs collect the inputs from the district centre and deliver them to their members. Although members can choose amongst different types of crops, the majority of subsidies go towards maize. Maize input packs include 200 kg of fertiliser and 10 kg of hybrid seeds that allows cultivating 0.5 hectares of land.

[1] Camps are at the lowest administrative level and are comprised of one or more villages.

There is at present not much literature on the state of inclusion in Zambian FOs. The latest national representative livelihoods survey has found that 44 percent of Zambian smallholders were members of FOs during the 2013/14 agricultural season (IAPRI, 2016). However, general interpretation of such rates of membership is complicated by the fact that many organisations may be defunct or inactive and do not provide any services to their members (Lolojih, 2009). Therefore, many farmers may be registered in inactive or multiple organisations or may be reluctant to join them due to perceived limited benefits. Nevertheless, it remains unclear whether those who actually do want to join may face barriers or adverse incentives to their participation.

Several lines of evidence suggest that financial barriers may restrict participation. On paper, members pay entry fees, annual membership fees and are obliged to buy shares of the organisation. In the 2013/14 agricultural season, 21 percent of smallholders indicated non-affordability of membership in FOs as the second most frequent reason for not benefitting from FISP (IAPRI, 2016). Burke et al. (2012) further estimate that membership costs, together with FISP upfront payments, make up 20 percent of the gross annual income for 60 percent of households. In addition, these costs typically arise at a difficult time of the year, during the hunger season, when most farmers have spent their savings from the previous harvest. This has led to internal arrangements through which members pool their funds and break up input packs accordingly (CSPR, 2011).

Table 1 provides a summary of the previous discussion, indicating that overall inclusion outcomes do not fully meet national inclusion targets. While FOs provide formal and informal rules and institutions, it remains unknown how they may proactively shape participation of disadvantaged households. This is what makes Zambia and its subsidy program an interesting case to conceptualise and empirically test inclusion within FOs.

Table 1: Summary of a Multilevel Analysis on Inclusiveness within Zambia's Farmer Input Support Program (FISP)

Level	Unit	Step	Leading question	FISP evidence
National	Subsidy program	Targets	Who should be included?	The program targets vulnerable but viable farmers, including those who (1) cultivate 0.5 to 5 hectares of land, (2) are members of a FO, (3) have not defaulted from the credit program and (4) do not already participate in the Food Security Program.
Institutional	Farmers' organisation	Process	How can FOs shape barriers and incentives for participation?	Disadvantaged households face financial barriers to participation. Other types of barriers and incentives remain unknown.
Individual	Household	Outcome	Who benefits from subsidies?	Households with larger farm sizes and better education receive more subsidies.

Source: Authors, based on Burke et al. (2012), MAL (2014a), Mason et al. (2013)

2.3 Inclusion as a Process: Framework for Studying Inclusion in Farmer Organisations

2.3.1 Inclusion Outcomes in Farmer Organisations

Recently, a considerable amount of literature has grown around the theme of inclusive FOs in Africa. The majority of empirical studies conceptualise inclusion in the realm of market access or value chains and, to a lesser extent, in the context of public policies (Lutz and Tadesse, 2017; Markelova and Mwangi, 2010). One major drawback has been that existing studies lack pre-formulated inclusion targets and, thus, can hardly justify why FOs should be inclusive of whom, to what degree and on what grounds. Thus, their main contribution lies in describing membership propensities and access to benefits. However, the results of these studies show that African FOs tend to be more inclusive of better-off farmers as the likelihood of becoming a member increases with farm size, education and access to credit for farming households (Bernard and Spielman, 2009; E. Fischer and Qaim, 2012). The evidences also indicate a gender gap in which female-headed households are less likely to participate in FOs (Abate et al., 2014; Mojo et al., 2017; Wossen et al., 2017).

This raises the question of whether public policies can influence the participation of targeted farming households. To date, very few studies have investigated this relationship. Verhofstadt and Maertens (2014) found that Rwandan organisations with subsidised inputs generate higher income effects than those without. While this increases the expected benefits and, thus, incentives to participate, it also attracts a heterogeneous group of farmers to the group. In the case of Senegalese community organisations, Arcand and Wagner (2016) found that membership has become more inclusive, in line with program regulations. However, the authors also noticed dropout rates being higher amongst long-established members and women dropping out even more disproportionally. These results confirm previous findings concerning community organisations in Kenya, where Gugerty and Kremer (2008) concluded that participation in public programs attracted younger, better-educated and wealthier individuals into the group who then assumed leadership positions. Taken together, these results imply that public policy may bear the risk of reinforcing gender inequalities and intensifying adverse inclusion outcomes in FOs.

2.3.2 Inclusion Processes and Analytical Framework

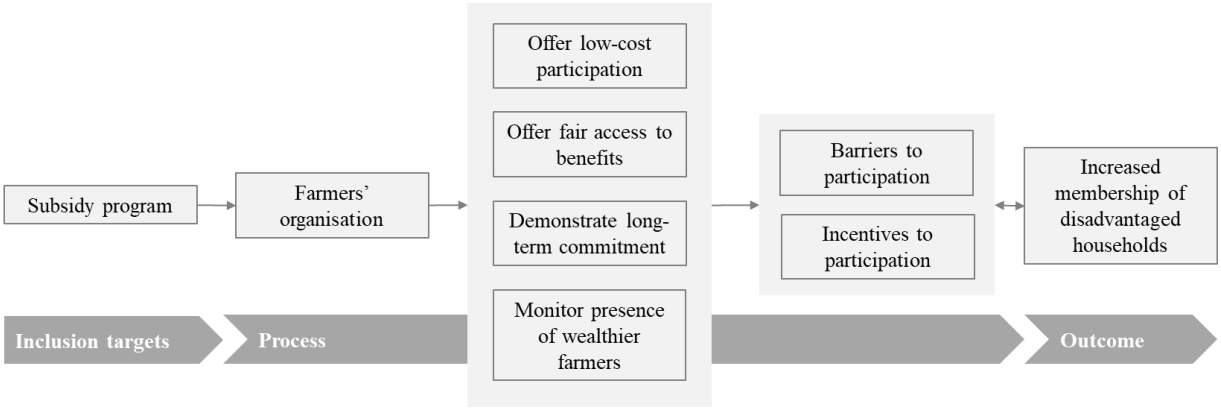
The empirical results on inclusion outcomes that we have just outlined highlight the need to better understand the underlying processes shaping barriers and incentives to inclusion from an organisational perspective. Based on the previous discussion, we expect that financial and other barriers may discourage participation of resource-poor and especially female-headed households.

Indeed, participation costs are differently perceived across households and tend to marginalise poorer farmers, especially when high-value markets are involved (Markelova and Mwangi, 2010). Women tend to face even higher costs, as their household responsibilities and reproductive activities increase their opportunity costs (E. Fischer and Qaim, 2012). In Uganda, Selhausen (2016) found that 88 percent of female non-members would like to become members of coffee cooperatives but lack sufficient resources or decision-making power to do so.

The empirical results discussed here have, we believe, further established the fact that better-off farmers tend to benefit more from participation in FOs. In attempting to explain this situation, various studies have suggested that larger and better-off farmers tend to produce more and benefit more from economies of scale when dealing with FOs (Mojo et al., 2015). Some authors argue that wealthier farmers benefit more in organisations that value business over equity objectives or in organisations that focus on efficiency targets vis-à-vis livelihood development (Kabeer, 2000; Lutz and Tadesse, 2017; World Bank, 2008). Irrespective of the objective, we argue that farmers are more likely to invest in organisations that are active and offer tangible benefits to their members. Therefore, long-term commitment may be a prerequisite for inducing inclusive participation. Our previous discussion on empirical outcomes has, however, demonstrated that tangible benefits may also attract wealthier or better-educated individuals to such groups. Although we have argued that this may increase gender inequality, the effect on inclusion remains inconclusive. Meanwhile, whereas some authors have found that the presence of wealthier farmers may improve leadership and performance while also reducing group coordination costs (Bernard and Spielman, 2009; Dasgupta and Beard, 2007), others warn that rural elites may exert power over others to promote their own interests (Markelova and Mwangi, 2010).

Against the background, we propose the following framework to study inclusion in FOs. Figure 1 shows how organisations can proactively shape inclusion outcomes in four ways related to participation costs, access to benefits, long-term organisational commitment and participation of wealthier farmers. Although each of the four dimensions appears to have a direct effect on barriers and incentives to participation, it remains unknown whether they induce inclusion by themselves or only in combination with each other.

Figure 1: Framework for Studying Inclusion in Zambian Farmers' Organisations



Source: Authors

3 Method and Data

3.1 Comparative Case Analysis

In the previous section, we have elaborated upon the conceptual challenges of studying inclusion and highlighted the need for a process-oriented, contextualised and multilevel approach. We detail here how we have tried to meet this need through an iterative approach to data collection, model specification, case selection and re-conceptualisation of inclusion dimensions and their outcomes (Hickey, 2007; Ragin, 2000; Schneider and Wagemann, 2012). [2]

First, we selected fuzzy-set Qualitative Comparative Analysis (fsQCA) as our primary method, as it combines qualitative and quantitative elements and combines in-depth case knowledge with mathematical algorithms to produce generalizable results. It offers tools for systematic cross-case comparison of a small to medium number of cases (Rihoux and Ragin, 2009) and can be used to test existing theories or to generate new theoretical arguments (Berg-Schlosser and De Meur, 2009). The fsQCA approach is considered to perform particularly well in studying complex phenomena in the social sciences, because it enables the examination of complex relations of causality, making it, we feel, a method particularly applicable for studying inclusion (Rihoux and Ragin, 2009). Unlike with standardised quantitative methods, fsQCA does not analyse the individual effects of one variable on another but, rather, identifies all necessary and/or sufficient conditions and combinations thereof that can lead to an outcome.[3] In other words, fsQCA results can be expected to tell us whether a single explanatory condition (e.g. low-cost participation or access to benefits), or a combination of conditions (conjunctural causation), or even multiple pathways (equifinal causation) will explain the emergence of inclusion.

The fsQCA method uses set theory to assign different cases to different sets, meaning theoretical constructs that are supposed to represent the condition or outcome under study. In our analysis, FOs were treated as individual cases. The method was originally developed to study crisp-set situations in which cases are assigned to sets of conditions (e.g. low-cost participation) that are either present or absent. However, to allow for different degrees of membership in a set we have employed fuzzy-set theory. Therefore, cases in our study could either be assigned fully into a set (fuzzy value = 1), fully outside a set (fuzzy value = 0) or considered neither inside nor outside a set (fuzzy value = 0.5). Fuzzy values were then minimised, using Boolean algebra to generate a solution formula displaying all possible causal pathways that were sufficient for the outcome of inclusion to exist (Schneider and Wagemann, 2012). Further, we performed separate necessity and

[2] Raw data for fsQCA analysis can be provided upon request.

[3] Typically, good practice using fsQCA requires performing separate analyses for the presence or absence of an outcome (Schneider and Wagemann, 2012), but for our analysis the latter could misleadingly be interpreted as seeking forms of exclusion within farmer organisations. The inclusion literature, however, suggests that inclusion and exclusion processes rely on quite different mechanisms and therefore, exclusion outcomes tends to rely on different sets of conditions. To avoid misinterpretation, therefore, we only report in this paper on the presence of the outcome (inclusion).

sufficiency analyses, using the QCApro Package in the 'R' computer software (Thiem et al., 2016, http://cran.rapporter.net/web/packages/QCApro).

3.2 Data and Case Selection

We used original data collected between October and December 2015 from FOs in Solwezi, an administrative district of the North Western Province of Zambia. The study area was chosen for the relatively high importance of maize production there, its relatively low productivity (as a proxy for fertiliser demand), and its average maize-farm sizes, which are close to the provincial average (MAL, 2015; MAL and CSO, 2015). In addition, as low population densities and large distances generally obstruct research activities in Zambia, the relative accessibility of this area served as additional key criterion. At the time of the study, 215 formally registered organisations were eligible to receive maize subsidies in the study area during the 2015/16 agricultural season (MAL, 2014b).

We followed Ragin's (2008) sampling approach to QCA, with the objective of seeking to ensure the comparability of FOs while maintaining variability in inclusion outcome and dimensions. We set a district-level boundary for the study area to control for comparability as FOs are likely to share ethnic identities, livelihood characteristics, access to markets and have similar quality natural resources or public extension services.

Because fsQCA only performs well under variability of outcomes and conditions, cases were selected purposely, based on prior case information and knowledge from in-depths interviews with government officials and local experts. We identified 17 cases that showed exhibited acceptable degrees of variability, meaning that they expressed very high or very low degrees of inclusion, while also differing strongly in terms of their participation costs, access to benefits, long-term commitments and presence of wealthier farmers. From the 17 cases, only 15 cases were open to participating in the study and entered the analysis.

We used a semi-structured interview format to collect information about organisational and individual characteristics, inclusion outcomes and dimensions. Open questions were used to induce story-telling and unexpected answers. In the town of Solwezi, 35 interviews were conducted with representatives of the organisations, individual members and local experts to cross-validate case information. In addition, we conducted three focus group discussions in local communities, with the support of translators. Case information was supplemented with organisational documents, including bylaws, minutes of meetings or cooperative inspection checklists. We used quantitative data from the 2014 Solwezi District Cooperative Register (MAL, 2014b)[4] and the fifth national Census of Population and Housing from 2013 (CSO, 2013) to define anchor points during calibration.

[4] The Ministry of Agriculture and Livestock administers the District Cooperative Register, which keeps record of all formally registered farmer organisations, their membership characteristics and participation costs.

3.3 Operationalisation of the Inclusion Framework

We operationalised our proposed inclusion framework within the context of Zambian FOs, based on literature review and empirical case study knowledge. **Error! Reference source not found.** provides an overview of the outcomes, conditions, sub-conditions and indicator values used for the fsQCA.

We measured inclusion outcomes (INC) against membership of disadvantaged households in FOs. Consistent with our literature review, we have found FOs to be less inclusive of female-headed households. Meanwhile, based on discussions with government representatives and members of the selected study organisations, we have identified widow-headed households as most the disadvantaged ones in rural Solwezi (Kabeer, 2000).[5] Zambia continues to be strongly affected by HIV/AIDS and has the seventh-highest prevalence rates in the world. This, in combination with average fertility rates of 6.6 children per woman create conditions of high vulnerability for widow-headed households (Harasty et al., 2015). Women who lose their husbands need to grow enough maize to feed their children, in spite of limited labour availability.

Our proposed inclusion framework has identified four dimensions that may shape inclusion outcomes for FOs. These dimensions have been transformed into conditions for analytical purposes and unfolded into sub-conditions and indicators (see Table 2). Firstly, to improve inclusion outcomes, FOs may offer low-cost participation (LCO), which we measured as a composite of different cost sources. We expected that initial registration fees might act as an entry deterrent, while annual share costs could become an obstacle to membership continuity.

Secondly, FOs can offer fair access to benefits (BEN) to increase incentives for disadvantaged households to participate. Because all of the FOs studied are involved in FISP, we expected that gaining access to subsidised inputs would generally be the main motive for becoming a member. Yet, in reality, the supply of inputs through FISP is usually insufficient to cover demand, so some organisations have consequently developed internal arrangements to redistribute subsidies so that all members can benefit, at least in smaller quantities. Although such organisations may seek to offer fair or equal distribution of subsidies, others may distribute subsidies on a first come, first served basis. In addition, some organisations also offer loans to members who otherwise cannot afford FISP packs or even membership fees. Although FISP subsidies reduce the cost of inputs, they remain considerably high for the majority of households (Burke et al., 2012). Then again, access to benefits may also be obstructed if the organisation sets up internal rules to limit participation in FISP. Our data suggests that some organisations, for example, make the annual payment of shares a pre-condition for continued membership.

Thirdly, FOs that demonstrate long-term commitment (COM) to their members may attract more disadvantaged households. It was found that some organisations were formed with the single purpose of accessing FISP inputs and, according to local experts, are less committed to developing

[5] During field work, we also considered the elderly as a disadvantaged group of farmers, because their physical capacity to work the land may be severely limited. However, we found that older people tend to receive more support from their extended families than widows do. Thus, the vulnerability of old peopled had to be considered case by case. Because it was difficult for interview partners to consider household networks, the share of elderly members was dropped as a variable of the analysis.

the livelihoods of their members. Such organisations can be characterised by absence of a diversified portfolio of activities. In our cases, potential activities included collective farming, groundnut butter or poultry production, building community infrastructure or operating an open market – activities which attract farmers and traders. Commitment is also visible with regard to the openness of organisations. Some organisations are reluctant in welcoming new members, for example, because that would increase competition over scarce input packs. We also controlled for the age of the organisation, because the setting-up and functioning of group activities is time-sensitive. In this vein, we expect that younger organisations may be mainly preoccupied with the establishing and functioning of their own structures before they can pro-actively reach out to disadvantaged households.

Finally, the presence of wealthier farmers (WEA) was expected to shape inclusion outcomes, but the literature as well as local experts remain equally inconclusive about the effects. We expected that, on the one hand, wealthier farmers could assume leadership positions and professionalise their organisations, which would likely increase profitability and working capital that could then be used to reach out to disadvantaged farmers. On the other hand, the presence of wealthier farmers bears the risk of elite capture and the crowding-out of disadvantaged households who do not feel their needs represented. We also expected that homogenous groups would foster shared identities and solidarity within FOs.

Each condition is a composite of three sub-conditions and indicators. We used census data to establish external reference points for continuous indicators, and sub-conditions were aggregated using arithmetical means, meaning that they are partially compensatory (the value of one indicator can compensate another) and non-interactive (indicator values are independent; Møller and Skaaning, 2012).

A direct method of calibration was applied to the aggregated data, a procedure that required the setting of three anchor points (Ragin, 2000). Such calibration is intended to determine how strongly cases are related to theoretical categories, with the anchor points providing structure for the fuzzy sets. The fully in (fuzzy set value = 1) establishes an ideal imaginary case that fully represents the presence of the condition, whereas the fully out (fuzzy set value = 0) establishes which cases represent absence of the condition. Meanwhile, a fuzzy set value = 0.5 functions as a crossover point, where the condition is neither present nor absent. Anchor points were generated from statistics, case knowledge and natural breaks in the data. At the outcome level, we applied a fully in value at 15 percent, crossover point at 10 percent and fully out value at 3 percent. At the condition level, we applied a fully in value at 0.65, crossover value at 0.34 and fully out value at 0.01. See Appendixes A and B for the aggregated and calibrated datasets.

Table 2: Operationalisation of the Inclusion Outcome and Conditions for Farmers' Organisations in Solwezi, Zambia

Outcome	Sub-outcome	Indicator	Anchor points
Inclusion (INC)	Share of widows	Share of widows amongst female members is [...] than the average in rural Solwezi.	1 = higher 0.5 = equal 0 = lower
Condition	**Sub-condition**	**Indicator**	**Anchor points**
Low-cost participation (LCO)	Entry cost	Registration fee is [...] than the cost of a share.	1 = lower 0.5 = equal 0 = higher
	Annual cost	Price of a single share is [...] than the average price in Solwezi.	1 = lower 0.5 = equal 0 = higher
	Enforcement	FO does not strictly enforce the buying of shares.	1 = yes 0 = no
Fair access to subsidies (SUB)	Equal access	FISP packs are shared equally amongst all members.	1 = yes 0 = no
	Loan availability	FO offers loan service to cover upfront FISP payments.	1 = yes 0 = no
	Internal eligibility	Participation in FISP does not depend on the buying of shares.	1 = yes 0 = no
Long-term commitment (COM)	Age	FO was registered [...] years ago.	1 = >5 0.5 = 2-5 0 = <2
	Diversified activities	FO offers [...] activities in addition to providing access to FISP.	1 = 2 or more 0.5 = 1 0 = 0
	Openness	FO grew by an additional [...] of membership in 2014.	1 = >10% 0.5 = 4-9.9% 0 =< 4%
Presence of wealthier farmers (WEA)	Wealth distribution	The share of members who have bought commercial fertilizer in 2014 is [...] compared to the average in the constituency.	1 = higher 0.5 = equal 0 = less
	Presence larger farmers	Membership includes farmers who cultivate 5 or more hectares.	1 = yes 0 = no
	Absence smaller farmers	The share of farmers cultivating 0.5 hectares or less is [...] than the average in the constituency.	1 = lower 0.5 = equal 0 = higher

Source: Authors

4 Results

4.1 Necessary Conditions for Inclusion in Farmer Organisations

In general, a condition is considered to be necessary if, whenever the outcome is present, the condition is present too. This means that the condition is a superset of the outcome. We applied a consistency threshold of 0.9 to identify necessity (Schneider and Wagemann, 2012). Table 3 reveals that only the presence of long-term commitment (COM) fulfils the initial criteria. However, it scored too low on the 'Relevance of Necessity indicator' as proposed by Schneider and Wagemann (2012), and thus does not qualify as a necessary and relevant condition.

Table 3: Necessity Analysis for Inclusion in Zambian Farmer Organisations

	LCO	SUB	COM	WEA
Consistency	0.77	0.74	0.95	0.72
Coverage	0.58	0.66	0.73	0.62
Relevance			0.50	

Notes: 'Set-theoretic consistency assesses the degree to which the cases sharing a given condition or combination of conditions [...] agree in displaying the outcome in question [...]. Set-theoretic coverage, by contrast, assesses the degree to which a cause or causal combination "accounts for" instances of an outcome' (Ragin, 2006:292). Values range from 0 (no consistency/coverage) to 1 (full consistency/coverage).

4.2 Sufficient Pathways towards Inclusion in Farmer Organisations

To perform a sufficiency analysis, we first generated a truth table for the outcome (INC) and the four conditions. Table 4 shows that eight of the 16 (4^2) possible combinations of conditions are empirically observable in the dataset, with seven cases having the outcome present (INC=1). The unobserved combinations were treated as logical remainders.[6]

Table 4: Truth Table for Inclusion in Zambian Farmer Organisations

LCO	SUB	COM	WEA	INC	Consistency	Cases
0	0	1	1	1	0.90	13
0	0	1	0	1	0.86	2, 3, 6
1	0	1	1	1	0.83	1, 14
1	1	1	0	1	0.82	11
1	1	1	1	0	0.72	4, 8, 9
1	0	1	0	0	0.70	7, 15
1	0	0	1	0	0.65	10
1	1	0	1	0	0.53	5, 12

Note: 0 = Absence; 1 = Presence

We applied Boolean algebra and the Quine McClusky algorithm to minimise the combinations showing presence of the outcome and to identify sufficient conditions or combinations of conditions. A condition or combination is sufficient if the outcome always occurs when the condition or combination is present. Therefore, sufficient conditions and combinations are subsets of the outcome. Table 5 presents the particulars of the sufficiency analysis. Following Schneider and Wagemann (2012), we have applied a consistency threshold of 0.8, which renders the following solution, where '+' signifies OR, '*' signifies AND, and '~' signifies the absence of a condition:[7]

~LCO + ~WEA*SUB + WEA*~SUB*COM -> INC

This solution identifies three possible pathways that can individually and sufficiently explain inclusion in FOs and reveal the following causal relationships:

(1) Either the absence of low-cost participation leads to inclusion in FOs (observed in four cases); OR
(2) The absence of wealthy members in combination with fair access to subsidies leads to inclusion in FOs (observed in one case); OR
(3) The presence of wealthy members in combination with the absence of fair access to subsidies and the presence of long-term commitment leads to inclusion in FOs (observed in three cases).

[6] Logical remainders describe configurations that are logically possible but empirically unobserved in the dataset. This phenomenon is described as limited diversity.

[7] Three types of solutions exist, depending on how logical remainders are treated. According to Baumgartner (2015), parsimonious solutions reflect causal structures better than the conservative and intermediate solutions.

Table 5: Results from Sufficiency Analysis on Inclusion Pathways

Solution			
Solution consistency	0.88		
Solution coverage	0.57		
Inclusion Pathway	~LCO	~WEA*SUB	WEA*~SUB*COM
Consistency	0.91	0.82	0.84
Raw coverage	0.27	0.37	0.36
Unique coverage	0.03	0.17	0.08
Case No.	2, 3, 6, 13*	11	1, 13*,14

Note: Case No. 13 is a multiply covered case.

5 Discussion and Conclusion

This paper has explored inclusion processes using primary data from Zambian Farmers' Organisations (FOs) that are involved in the implementation of the country's Farmer Input Support Program (FISP). We have reviewed relevant literature and identified four explanatory conditions that appear to shape barriers and incentives for disadvantaged households to participate in FOs. The conditions suggest relationships between inclusion outcomes and participation costs, access to benefits, an organisation's commitment to long-term development and the presence of wealthier farmers. We applied fuzzy-set Qualitative Comparative Analysis (fsQCA) to 15 FOs to analyse individual or combined effects of the explanatory conditions, all of which were found to be important for explaining the presence of inclusion in FOs. We therefore consider our conceptual framework to be robust.

One of our main findings is that inclusion appears to be far more complex than it has often been depicted in the literature and policy debates. Although we have limited the number to four explanatory conditions, our empirical results reveal complex relationships of causality. Specifically, they show that inclusion develops along three alternative pathways that can individually and sufficiently explain the emergence of the outcome of inclusion. Furthermore, our results suggest that three out of four of the explanatory conditions lead to inclusion only in combination with each other.

We propose that these findings offer some important conceptual insights. Firstly, they highlight the fact that inclusion develops amidst multiple pathways that each explain different causal relationships and mechanisms. Against this background, scientific application of the concept of inclusion needs to allow for the presence of conjunctural and equifinal causation. Furthermore, and from a practical view, the results suggest that creating conditions for inclusion requires a systemic approach, meaning that one or more explanatory conditions need to be simultaneously addressed to generate the desired effect.

From an empirical point of view, the results can contribute to our understanding of inclusion processes in FOs. Unexpectedly, we found an inverse association between low-cost participation and inclusion, meaning that our findings do not seem to support the common argument that higher participation costs may discourage participation of disadvantaged farmers, who often qualify as resource poor (Burke et al., 2012; Selhausen, 2016). However, consistent with previous studies, we do find multiple effects of wealthier farmers on inclusion (Dasgupta and Beard, 2007; Markelova and Mwangi, 2010). The results suggest that both the presence and absence of wealthier farmers may lead to inclusion but only in combination with other explanatory conditions. Although both effects may contribute towards overall inclusive development, access to subsidies appears restricted in the presence of wealthier farmers and, therefore, is less preferable.

Altogether, these findings raise the question of whether the commonly applied highly standardised quantitative approaches do justice to the conceptual and empirical complexities of studying inclusion (Khan, 2012). We have shown that comparative case analysis can generate novel results, but our approach is also subject to certain limitations. Because case selection was purposely restricted, our findings should not be taken as representative of all Zambian FOs but should be taken

as starting point for future research. More specifically, case selection was based on the prior knowledge of government representatives and experts on available cases, their inclusion outcomes and performance conditions. Therefore, case selection may have been biased towards more familiar as opposed to unfamiliar organisations.

6 References

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