



Student Paper Series

**The Value Chain Approach to rural agricultural
development. Understanding the principal
determinants of pro-poor outcomes**
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Executive Summary

This paper seeks to better understand the determinants of pro-poor outcomes in value chain projects. It is motivated by a desire to examine scepticism regarding the widespread use of value chain projects as poverty-alleviation tools. The thesis is guided by the following questions

- i. Can value chain approaches to rural development benefit the poor in a direct manner?
- ii. Under what circumstances can value chain approaches to rural development achieve the most substantive and significant pro-poor outcomes?

In particular, the paper focuses on asset-poor agricultural producers (including farmers), which are referred to as **poor producers** for the sake of brevity. As such, **pro-poor outcomes** refer to beneficial outcomes for asset-poor agricultural producers.

To address these two questions, the paper is divided into three chapters. Chapter one explores the concept of the value chain. Through this it highlights an increasing emphasis on value chain projects among donor organisations, as well as a lack of thorough monitoring and evaluations of these projects.

Chapter two develops an understanding of pro-poor outcomes in value chain projects. This understanding is developed in a three-stage process. First, a review of existing academic literature, donor documents, and independent evaluations of value chain projects is conducted (Section 2.1). The aim of the review is to develop an understanding of value chain participation, particularly the terms by which participation can occur.

Second, the paper identifies ten key factors affecting the ability of poor producers to participate in and directly benefit from value chains (Section 2.2). They are: labour intensity; asset specificity; commodity differentiation; long-run price stability; perishability; time-horizon and frequency of benefits; vertical coordination; horizontal coordination; vertical integration by producers' associations; and lead firm.

Third, the paper synthesises these findings into a testable analytical typology consisting of six key determinants of pro-poor outcomes. These are: labour intensity; specificity; resilience; perishability; income smoothing; and governance of linkages. This analytical typology is intended to serve as a conceptual framework on which value chain selection, design, and implementation may be structured. The typology is presented in terms of the likelihood that value chains will achieve pro-poor outcomes (Section 2.3). This typology serves as the paper's principal output, and can be both applied to, and tested using future value chain projects.

Chapter three applies the typology to an assortment of IFAD's on-going value chain projects. The aim of this section is to offer an example of how the typology could be applied in practice (Section 3.2). This is done to guide future research on pro-poor outcomes in value chain interventions. Two projects are given particular attention. These two cases exemplify how the typology can be applied to value chain project designs to create falsifiable hypotheses on whether the projects will achieve pro-poor outcomes. The intention is that future projects will utilise similar hypotheses to test the typology's explanatory power (for a proposed methodology, see Appendix).

In the conclusion, the paper offers recommendations for future research.

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Introduction

Over the past twenty years, the value chain approach to rural agricultural development has grown in popularity among development donor organisations, including AusAID, DfID, GIZ, and USAID. This development model seeks to promote the inclusion of smallholder farmers in formal markets through targeted investments and strategic interventions in value chains. By promoting the formalisation and commercialisation of agricultural activities, this development approach seeks to use agriculture as a driver of economic growth.

More recently, organisations such as the International Fund for Agricultural Development (IFAD) have adopted the value chain approach to promote poverty reduction. Value chain projects are thought to address poverty directly through the commercialisation of non-commercial producers, and indirectly by stimulating broader rural development. There are, however, significant uncertainties as to the potential for the poor to participate directly in value chains. In spite of these uncertainties, little supporting empirical evidence has been offered — a troubling reality given the substantial sums of money invested in these projects.

Given these uncertainties, this thesis is guided by the following questions

- i. Can value chain approaches to rural development benefit the poor in a direct manner?**
- ii. Under what circumstances can value chain approaches to rural development achieve the most substantive and significant pro-poor outcomes?**

In particular, the paper focuses on asset-poor agricultural producers, which are referred to as **poor producers** for the sake of brevity. As such, **pro-poor outcomes** refer to beneficial outcomes for asset-poor agricultural producers.

To address these two questions, this paper will be divided into three chapters. In the first chapter, the concept of the value chain will be discussed. It will chart the increasing emphasis on value chain projects among donor organisations, as well as the shortcomings of the monitoring and evaluations of these projects. Chapter two will develop an understanding of pro-poor outcomes in value chain projects. To do so, a review of existing academic literature, donor documents, and independent evaluations of value chain projects will be conducted (Section 2.1). The paper will then identify the key factors affecting the ability of poor producers to participate in and directly benefit from value chains (Section 2.2). Building on the review, this paper will present a testable analytical typology consisting of six key criteria. This analytical typology is intended to serve as a conceptual framework on which value chain selection, design, and implementation may be structured. The typology will be presented in terms of the likelihood that a respective value chain project may deliver pro-poor outcomes (Section 2.3). This typology will serve as the paper's principal output, and can be both applied to, and tested using future value chain projects. Chapter three, the typology will be applied to on-going IFAD value chain projects.¹ The aim of this section is to offer an example of how the typology could be applied in practice (Section 3.2). This is done to guide future research on pro-poor outcomes in value chain projects.

¹ The selection of projects was limited to those for which sufficient information was available in order to draw conclusions as to the likelihood of achieving pro-poor outcomes.

Chapter One

1.1. The concept of the Value Chain

The concept of the value chain was popularised in Michael Porter's *Competitive Advantage: Creating and Sustaining Superior Performance* (1985). Michael Porter's value chain concept merged several streams of business management theory (Altenburg, 2006), and contributed a more nuanced understanding of business strategy by advocating for a firm level, network approach. In particular, it focused on

- i. The competitive advantage derived from horizontal and vertical market linkages, and
- ii. The value added at each linkage.

In this context, linkages refer to the relationships between two or more market participants. Vertical linkages refer to the relationships between market participants engaged in different stages of the production process. While horizontal linkages refer to relationships that connect market participants within the same stage of the value chain.

The value chain identifies a firm as a link within a chain that enables a product to move from pre-production to final consumption. A typical value chain will contain input providers, producers, processors, packagers, suppliers and retailers. In this sense, the concept of the value chain is relational. It promotes the perspective of a market participant embedded in a network of meaningful relationships, which can only be understood relative to the value chain in which the market participant operates.

1.2. The development agency approach

The insights developed in academia have more recently been incorporated into the work of development donor organisations. According to Altenburg (2006), this rise in attention among members of the development community has been driven by four underlying assumptions

- i. Economic growth leads to pro-poor outcomes
- ii. High economic growth rates are dependent on internationally competitive economic sectors
- iii. Global integration is facilitated by the development of formal relational networks
- iv. Development is about the integration of actors into marketable activities while balancing competitiveness and equity

More explicitly, the value chain approach to economic development asserts a direct causal relationship between pro-poor outcomes and the engagement of poor producers and processors in value chains. Riisgaard and Ponte (2011) argue that central to much of the value chain literature are the assumptions that supplying formal value chains

- i. Automatically generates greater income and other benefits for the asset poor
- ii. Enables pre-production investment, knowledge and technological assistance to overcome barriers to entry.

1.2.1. Value chain interventions

Building on the understanding of the importance of developing and managing formal market linkages, value chain projects are designed to intervene in markets — often intervening in pre-existing value chains, but at times building entirely new ones² (Henriksen et al. 2010, p. 1) — so as to create equilibria that are more suitable for the poor. In the context of using value chains as a development tool, Henriksen and colleagues (2010) suggest that

First, Value chain development can be understood as any concerted effort to improve the conditions in the value chain. It usually implies a change in participation of beneficiaries in value chains, enhancing rewards, and/or reducing exposure to risks. Rewards and risks should be understood not only in financial terms but also in relation to the environment, poverty alleviation and gender equity.

Second, Value chain interventions are focused on improving or forging vertical linkages along value chains (in production, processing and trade functions) with the view of improving the functioning of the value chain and/or terms of participation of selected beneficiaries. Interventions may be targeted at domestic, regional or international value chains (p. 2).

While there is no fixed form that a value chain intervention will take, five stages are typical.

These are

² The more new markets, linkages or chains are developed, the more risk is accrued by those involved. “The consequences of developing radically new products, new markets or new linkages may be unpredictable [...] To the extent that poor people have few resources to cope with such unpredictability, it may be more prudent to improve the performance of existing value chain wherever possible” (Humphrey and Navas-Alemán 2010, p. 44).

- i. Selection of potential value chains, based on potential growth in the participation and economic development for the poor
- ii. Analysis of potential value chains, which will include
 - a. Mapping of key value chain actors
 - b. Market analysis of the distribution of rents
 - c. Identification for potential upgrading
- iii. Design of the value chain intervention strategy, focusing on constraints and opportunities
- iv. Implementation of the value chain intervention strategy
- v. Monitoring and impact assessment

1.2.2. Why the Value Chain Approach?

The development community's adoption of the value chain approach can be understood as an attempt to rectify the mistakes of past rural development strategies. In particular, development strategies that aimed exclusively at increasing producers' productive capacities failed to maintain a balance between supply and demand. Without access to markets, the resulting excess supply at times jeopardised the target groups' asset bases (Visser et al. 2012, p. 24; Vorley et al., 2011).³

Through the formation and strengthening of market linkages, value chain approaches seek to overcome these hurdles, and provide a degree of income consistency that the poor desperately need. The rural poor's lack of assets make them particularly vulnerable to exogenous shocks, either environmental or market-based (see World Bank, 2013). As a result, this demographic is considered to be highly risk averse, and often disinclined to invest in their own productive capacities — investments that are necessary for income growth (Norell and Brand, 2012). By providing a regularised and guaranteed source of

³ IFAD's Nigeria Root and Tubers Expansion Programme serves as a prime example of how a project's inattention to market linkages can lead to oversupply, and a subsequent collapse in prices (see Hartmann and Hamp forthcoming, p. 16).

income, vertically coordinated market linkages (e.g. contract farming) in value chains help overcome the rural poor's understandable aversion to risk (Riisgaard and Ponte, 2011). More specifically, Raswant and Khanna (2010) describe this aversion to risk as just one side of a sort of low-skill, low-income equilibrium. They state that "...there will be no investment by entrepreneurs unless supply is assured, and farmers will not produce more unless markets are assured. This dilemma can be addressed by financing the development of value chains through interventions that can address the supply and demand constraints simultaneously" (2010, p. 1). Without formal linkages between production and consumption, market actors may hesitate to make the investments necessary to drive growth in the sector, and thus in the incomes of its participants.

As well as ensuring that supply is matched by stable and consistent demand, the value chain approach also focuses other important factors, such as assistance with the provision of necessary inputs. Vorley and colleagues (2011) suggest that the numerous noteworthy benefits of participation in value chains include

- i. Higher returns through increased prices and higher productivity
- ii. Improved quality of output
- iii. Access to credit, inputs and technology
- iv. Reduction in vulnerability and risk
- v. Improved food security
- vi. Improved organisational capacity

1.2.3. Agriculture in poverty reduction

The emphasis on value chain interventions among donor organisations is built around growing recognition of the potential to reduce poverty through agricultural development. Many among the rural poor already possess the requisite skills needed to drive development and growth in the agricultural sector, as the majority are already involved in

subsistence or asset-poor agricultural production (Sjauw-Koen-Fa, 2012; Mazoyer, 2001). Given the prevalence of smallholder farmers throughout much of the developing world, increased productivity and commercialisation is thought to offer a means of ensuring that the benefits of economic growth are distributed in a reasonably equitable manner (World Bank, 2008; Cornia, 1985).

Meanwhile, a supply-side shortage of food and agricultural products is predicted by many to be a looming threat (Sjauw-Koen-Fa, 2012; Wegner, 2012). A growing population, increased environmental degradation, decelerating increases in crop yields, and the effects of climate change are all predicted to undermine the world's food supply in the near future (IAASTD, 2009). As a result, there will be significant demand for agricultural output in the years to come — demand that could be met by increasing the output and access to markets of the world's many smallholder farmers (Sjauw-Koen-Fa 2012, p. 15).

1.2.4. Challenges of the value chain approach to development

It is, however, important not to overstate the pro-poor potential of the value chain approach to development. For interventions to be feasible and sustainable, value chain participants must be economically competitive. The need for competitiveness in value chain interventions is both an asset and a liability. On the one hand, achieving economic competitiveness ensures that the dynamic created by the intervention is sustainable, contributing to long-term poverty alleviation. On the other hand, it may also serve as a barrier to entry for poor producers. Notable challenges include

- i. Integration of poor producers into value chains increases the transaction costs for downstream actors, hence the tendency for large buyers to prefer transacting at scale
- ii. Vertical coordination can facilitate crucial pre-production assistance for asset poor producers, so too does it require a level of market power that would allow a lead firm to unduly exploit producers

- iii. The focus on integrating poor producers into lead firm value chains risks addressing the needs of downstream value chain participants rather than those of the producers themselves
- iv. Insufficient attention to core business models of value chain participants risks creating an unsustainable market equilibrium that may fall apart after the project's completion

To produce favourable and sustainable outcomes, it is crucial that there be congruence between producers' assets and the needs of the value chain in which they participate (Vorley et al., 2011). Such productive assets include physical, financial, natural, social, cultural, political and human capital. A lack of any one of these assets could exclude a producer from a value chain, or jeopardise its sustainability after the project's completion.

Consequently, where a large gap exists between available and necessary assets, investments by donor organisations may prove too costly with respect to the potential benefits. The smaller the gap between available and necessary assets, the more cost-effective the intervention will likely prove to be. This highlights the importance of context-specific factors in determining not only the degree of expected pro-poor benefits (World Bank, 2013), but also the cost-effectiveness of a given intervention.

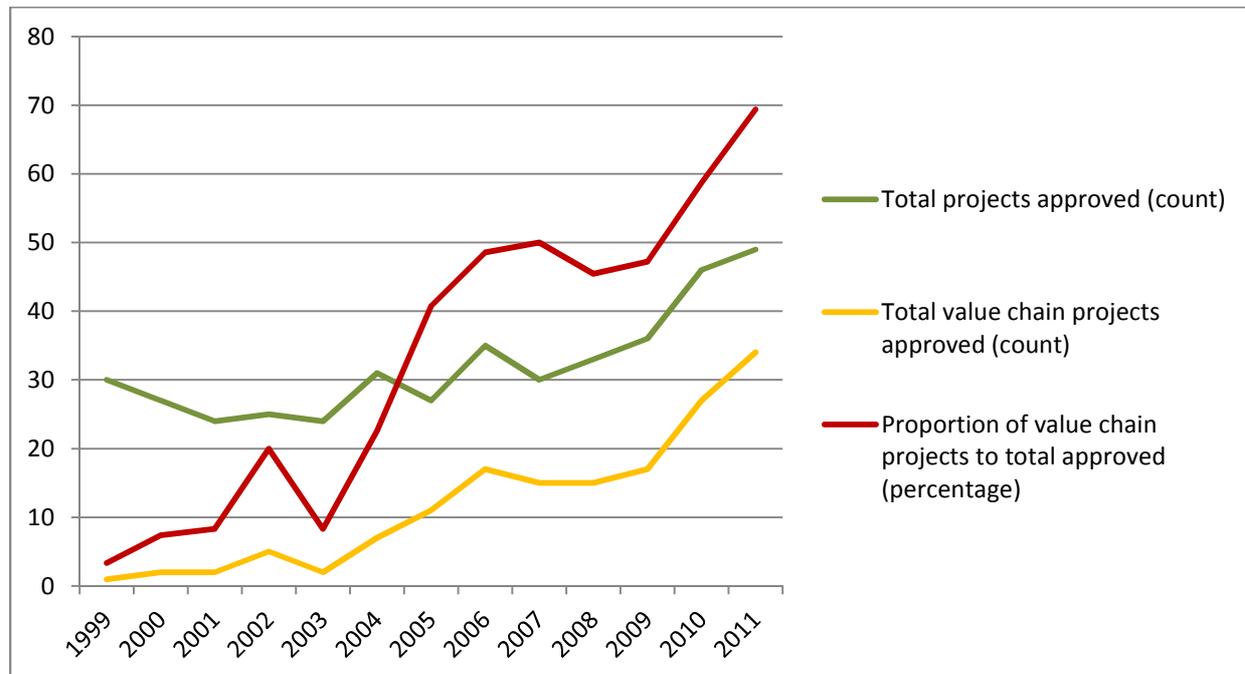
1.3. The prevalence of value chain projects

The value chain approach to development has become increasingly popular among development donor organisations over the past decade. USAID, the Bill and Melinda Gates Foundation, DfID, GIZ and AusAID are particularly vocal advocates of the value chain development model. While having embraced the value chain approach later than other donor organisations, IFAD has more recently become one of its stronger proponents. In its Strategic Framework 2011-2015, IFAD states that one of its principal thematic engagements will be the "integration of poor rural people within [agricultural] value

chains” (2011, p. 8). This focus on the integration of the rural poor into formal markets represents a substantive departure from the organisation’s rural development strategy prior to 2004. Value chain projects as a percentage of all projects approved by IFAD in a given year rose from 3.3% in 1999 to roughly 70% by 2011 (see

Graph 1: Value chain projects as a percentage of all projects approved by IFAD Executive Board).

Graph 1: Value chain projects as a percentage of all projects approved by IFAD Executive Board



Source: Authors’ compilation, adapted from Hartmann and Hamp (forthcoming)

It is worth noting that project comparisons across organisations can be difficult, as there is no unified definition of a Value Chain Intervention. The approach to both the design and implementation of value chain interventions varies between organisations. Nevertheless, a common aim — to improve market participation of selected beneficiaries by investing in their ability to engage in, and manage, market linkages — is recognisable.

1.4. Monitoring and evaluations of value chain projects

1.4.1. Biases in the available literature

The review of literature conducted in this paper is assumed to suffer from three sources of bias. First, without a large and representative household level data set, identifying the unique causal effect of a value chain intervention on poor producers is highly problematic. Second, development agencies may have an incentive to under report negative results. Given that independent evaluations of value chain project outcomes are scarce (Humphrey and Navas-Alemán, 2010), we assume that some evaluations produced by agencies not involved in the initial project design and implementation may over-report pro-poor outcomes. Finally, the existing literature on agricultural value chains overwhelmingly focuses on global value chains, in part because there is greater data availability for such projects. Meanwhile, it is likely that the value chain interventions with the greatest potential to achieve pro-poor outcomes will be those designed around local value chains — chains in which the costs and risks of participation tend to be much lower. This focus on global value chains may therefore negatively bias the literature review (Section 2.1).

1.4.2. Insufficient and ineffective empirical evidence

These biases are symptomatic of a broader deficiency in the monitoring and evaluations of value chain projects. As interest in the value chain approach has grown, so scrutiny of its underlying assumptions has increased. In 2010, the Institute of Development Studies explicitly articulated this concern, stating that

(i) there is not enough evidence on poverty alleviation impacts from these interventions to claim that they are effective or efficient in helping the poor, and (ii) the poverty focus of value chain interventions is not clear (which of the poor are being targeted, what kind of poverty is being targeted and how).

- Humphrey and Navas-Alemán (2010, p.29)

The IDS noted an associated, but distinct, confounding problem of attribution

evaluations and impact assessments that provide some form of comparison with control groups may well show that some of the many positive benefits that seem to arise from value chain interventions [...] may not be attributable to the interventions, or could equally be achieved through different types of interventions.

- Humphrey and Navas-Alemán (2010, p.58)

In other words, even where evidence may superficially appear to suggest a positive response to a value chain intervention, this response may in fact be attributable to another explanatory variable.

While impact assessments are undoubtedly important — methodologically compromised evidence is better than no evidence at all — the problem of attribution in impact

assessments is compounded by the general systemic complexity within which a value chain operates. In a report for the Swiss Development Agency, Daniel Roduner (2007) argues that

Value chains tend to be very dynamic and there are numerous actors and factors contributing to change. This means that it will likely be difficult to identify an impact even if it exists. Large datasets — which are likely to be costly to compile — will be needed to estimate poverty impacts. Moreover, to get valid data would imply that the net effect of an intervention is isolated from all other extraneous or confounding factors that influence defined impact. However, we have learned that many (confounding) factors are at play in effecting the changes observed at a highly-aggregated level. Therefore these changes cannot be reliably and proportionately traced back to any one intervention or program. We are in a complex system (p. 22).

Yet despite these methodological problems, impact assessments remain the only credible means of identifying and attributing positive outcomes to specific value chain interventions (Altenburg, 2006). Many projects attempt to gauge the impact on poverty through various other measures. Common indicators include the number of smallholder farmers that a project successfully links to formal markets. Yet measuring effects on poverty via such proxies can prove highly problematic.

The simplest measure, the number of farmers linked to a new market, is only part of the story. Linking small-scale producers to markets does not automatically lead to development and improved livelihoods, although many claims in CSR and business development reports would suggest otherwise (Vorley at al. 2009, p. 14).

It is not simply the lack of impact assessments that is troubling, but also the relative inattention given to the poor in project design and evaluations. To this end, Henriksen and colleagues (2010) suggest that

Concerning the inclusion of broader development goals — such as poverty reduction, gender equity and environmental sustainability — the depth and quality of analysis and the degree to which it informed target chain selection, design and implementation was limited. Although all projects had some form of generic targeting of poor people, only few projects detailed poverty levels along the chain and targeted the poor further by geographic differentiation or by social groupings (p. 37).

As these statements suggest, empirical evidence of the pro-poor benefits of the value chain approach is severely limited.

1.4.3. Theoretical complications

Accompanying the inadequate monitoring and evaluations of value chain projects are reasons to question the theoretical assumptions underlying the existing value chain literature. First, the asset poor generally lack the skills necessary to participate in formal value chains. This entry barrier is exacerbated by a historic underinvestment in rural infrastructure (Vorley et al., 2011) — infrastructure necessary to integrate poor producers into formal value chains. Second, formal markets are typically unwilling to tolerate the level of uncertainty associated with a producer's dependence on natural rainfall and inconsistencies in quality, quantity and timeliness of output — all common characteristics among poor producers. If the inclusion of poor producers in value chains were economically rational, they would play a greater role in existing commercial food production and distribution. However, “most cases or pilots of smallholder inclusion are

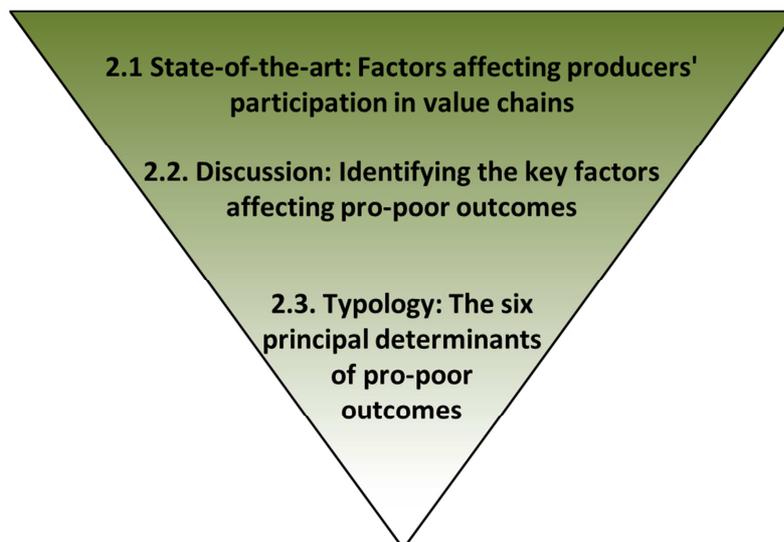
supported and subsidised by the public sector and civil society, or are CSR-driven by the private sector” (Sjauw-Koen-Fa 2012, p. 6).

Given the growing prevalence of the value chain approach and the lack of empirical research in support of its use as a poverty-reduction tool, further analysis of the link between value chain projects and their effects on the poor is undoubtedly necessary. It is in recognition of this that the following section reviews the existing work — both academic and otherwise — connecting these two concepts. It then synthesises this array of existing work, and uses it as the basis for the development of an analytical typology — one that can be used to either assess the pro-poor potential of existing value chain projects, or assist in the design and implementation of future projects geared toward these ends.

Chapter Two

Chapter two of this paper will seek to develop a more profound understanding of the key determinants of pro-poor outcomes in value chains projects. To do so, it will first review academic literature and donor documents relating to value chain participation, value chain power dynamics, and their collective effects on the distribution of rents among value chain participants (Section 2.1). Second, the concepts developed in the review will be applied to the development context, with an explicit focus on the poor. This process will serve as the basis for the development of ten key factors affecting the poor's ability to benefit from value chain participation (Section 2.2). To facilitate their analytical applicability, these ten factors will be operationalised by synthesising them into a typology. Comprising this typology will be the six principal determinants of pro-poor outcomes in value chain projects (Section 2.3). This three-step process is summarised in Figure 1: Chapter two structure.

Figure 1: Chapter two structure



Source: Authors' compilation

2.1. State-of-the-art: Factors affecting producers' participation in value chains

This state-of-the-art will review the existing literature and documentation relating to agricultural value chains. The purpose of this section is to develop a more profound understanding of the factors that affect participation in value chains, and the terms by which this participation occurs. Given the limited body of literature that links value chain interventions and poverty reduction, this review will draw more heavily from other related fields, notably supply chain management and agricultural economics. This section will be divided into two principal subsections: commodity-specific factors and value chain governance structures.

2.1.1. Commodity-Specific Factors

When produced efficiently, different commodities require different enabling environments and combinations of inputs. By their very nature, commodities may also produce and perpetuate particular value chain power dynamics. In particular, commodity-specific factors have a significant bearing on value chain participation, as well as the distribution of market power and rents among a value chain's participants.

To begin, participation in value chains for particular commodities may be limited to those able to meet specific prerequisites. In some instances, these prerequisites may erect barriers to market entry. Examples of such barriers include the necessitation of large-scale landholdings, stringent operational standards, and large volumes demanded by buyers (Seville, Buxton and Vorley, 2011; Okello, Narrod and Roy, 2011; de Schutter, 2009), all of which are examined below.

The first factor affecting value chain participation is the level of transaction costs incurred by buyers. In particular, smallholders are often excluded from value chains because of the transaction costs that would be incurred by buyers seeking to procure large volumes of

commodities (Vorley et al., 2011; de Schutter, 2009; Csáki and Forgacs 2007, p. 224; Dries et al. 2007, p. 228; Pingali et al., 2005; Omamo, 1998). To this end, Reardon and Huang's (2008) study of the determinants of value chain inclusion and exclusion found a statistically significant negative relationship between farm size and participation in both dairy and tomato value chains (p. 27).

Meanwhile, niche value chains are considered to be more conducive to participation by smallholders (Vorley et al., 2009; Staley and Morse, 1965). This has been attributed to the smaller production volumes typically demanded by buyers serving niche markets (Kula et al. 2006, p. 4). In markets with greater volume-based demands⁴, buyers are less likely to source from smallholder producers (Sjauw-Koen-Fa, 2012). While a large number of smallholder producers could supply the equivalent quantity, buyers reduce their transaction costs by instead transacting with a limited number of large producers (Vorley et al., 2009; Seville, Buxton and Vorley, 2011). Given that the quantities demanded in niche markets are generally smaller than in their non-niche counterparts, the transaction costs incurred by buyers forming linkages with smallholders are reduced.

Second, operational standards can also act as a barrier to participation in agricultural value chains (Lee, Gereffi and Beauvais, 2012; Reardon and Huang, 2008; Augier et al., 2005; Reardon and Berdegúe, 2002). Commodities with a high risk profile⁵ are generally characterised by restrictive health and food safety standards, as well as stringent monitoring practices (de Schutter, 2009; DfID, 2004). Commodities with a high risk profile include meat, dairy, and fresh produce (Wegner, 2012). As downstream actors have grown increasingly liable for upstream activities, such private operational standards have emerged as a top-down instrument to ensure traceability and accountability throughout a value chain (Vorley, 2003). Meeting these operational standards often requires sizeable investments, which may only be economically efficient at scaled production (Riisgaard and Ponte 2011, p. 35). The costs of compliance can be prohibitive, preventing smaller

⁴ Markets in which economies of scale play a more important role, as is often the case with staple crops.

⁵ The risk profile of a commodity is a function of the uncertainties involved in its production and distribution (FAO, 1997). For instance, meat is considered to have a high risk profile because of its need for careful handling and monitoring, as well as the severe human health issues that may arise from neglecting these best practices.

producers from participating in a value chain (Okello, Narrod and Roy, 2011; Kirsten and Abdulrahman, 2011; Sautier et al., 2006). To this end, Olivier de Schutter suggests that

compliance [with operational standards] has often required higher levels of capitalization than many smallholders [can] afford, and the high costs of monitoring and compliance over a large number of units have been an incentive for export companies to switch from smallholders to larger commercial farms.

- 2009, p. 15

In the case of GlobalGAP standards⁶, a joint IIED-NRI (2008) study found that the cost of compliance for smallholder producers exceeded half their profit margins, while producers themselves received no price premium to offset these incurred costs. Producers can be forced to bear the costs of implementing these food safety and traceability standards, while the benefits accrue to downstream actors (Asfaw, Mithöfer and Waibel, 2008; Altenburg 2006, p. 47-48).

In addition to affecting the patterns of value chain participation, commodity-specific factors also affect the terms by which this participation occurs. In particular, commodities have been observed to have a significant impact on the distribution of market power among value chain actors (Visser et al., 2012; Kula et al., 2006; Masten et al., 1991; Williamson, 1983). Market power is itself a key determinant of the terms of trade by which value chain participants transact (Dodd and Asfaha, 2008; Dobson, 2005). At its most extreme, market power can allow an actor to engage in oligopolistic or oligopsonistic behaviour (Rogers and Sexton, 1994). Examples of such behaviour include anti-competitive pricing and the externalisation of operating costs onto other value chain participants (Competition Commission, 2008).

First, the distribution of market power can be affected by the specificity of the assets used in a given value chain (Visser et al., 2012; Vukina and Leegomonchai, 2006; Joskow, 1988; Williamson, 1983). The more specific an asset, the less transferable it is. This can have one

⁶ A set of private sector-led health, food safety, and product traceability standards jointly followed by Europe's major food retailers.

of two effects. Assets that are specific to a particular production relationship⁷ can empower those who own them. This is because unique assets reduce the ease with which the asset owner may be replaced should the production relationship deteriorate (Masten et al., 1991; Joskow, 1988). This increases the dependence of other value chain actors on maintaining this production relationship. However, specific assets can also disempower the owner. This is because they reduce the ease with which the asset owner can abandon the production relationship, as the economic return on specific assets is, by definition, likely to decline when transferred to another context (Williamson, 1983). The direction of dependency in a production relationship is a function of contextual factors, including the type of asset (for an explanation of the types of specific assets, see Masten et al., 1991; Williamson, 1983).

Second, the distribution of market power can be affected by the perishability of a commodity (Berg et al. 2006; Sexton et al., 2005; Richards and Patterson, 2003). The greater the perishability of a commodity⁸, the more inelastic producers' supply will be, as output must be sold more quickly after harvest (Richards and Patterson 2003, p. 1-2). These time constraints limit a producer's flexibility when transacting with buyers, decreasing the producers' market power. This increases the opportunity for buyers to influence transactions and put downward pressure on commodity prices (Sexton et al. 2005, p. 2). To this end, Berg and colleagues (2006) found that cassava's high perishability undermined Ghanaian producers' bargaining power, as well as the prices they received (p. 33). Meanwhile, processors and distributors were found to be in a much more favourable bargaining position (Berg et al. 2006, p. 34).

Beyond their effects on market power, commodity-specific factors can also affect the distribution of rents in a given value chain. First, the production of more differentiated

⁷ Assets whose value is higher in the context of that market linkage than it would be elsewhere.

⁸ For example, "Fresh cassava is a highly perishable product which starts to rot 2-3 days after harvest. As poor producers cannot afford to keep cassava in the soil until market conditions are favourable, they sell their produce at any price, especially when there is a glut" (Berg et al. 2006, p. 33).

commodities⁹ typically increases the total value added along a value chain (Birthal et al., 2007; Kula et al. 2006, p. 6; Davis, 2006). Such commodity differentiation is achieved either through the inherent rarity of a commodity, or through the process of ‘product upgrading’. Characteristic of the former are high-value niche commodities whose production is limited to particular geographic regions (Birthal et al. 2007, p. 427-428). Meanwhile, the latter is achieved by reducing the substitutability of a commodity through an increase in its quality, and thus value (Kaplinsky, 2006; Humphrey, 2004; Gibbon, 2003). Examples include producing a higher grade of livestock, or the fundamental reorientation of a commodity’s underlying value proposition by producing in accordance with Certified Organic or Fair Trade standards (Norell and Brand, 2012).

Second, commodity-specific factors can also affect the distribution of rents within individual value chain segments (Berg et al., 2006; Sciaballa and Hattamm, 2002). Certain commodities are simply more conducive to labour-intensive production processes. Kaplinsky and Readman (2001) argue that such labour-intensive productive processes generate increased levels of employment, and therefore lead to a more equitable distribution of the income generated (p. 2). To this end, Certified Organic farming projects are often particularly labour intensive (Berg et al., 2006, p. 28; Darnhofer et al., 2005), and are often associated with positive development outcomes (Scialabba and Hattamm, 2002).

2.1.2. Governance Structures

This section will first examine the range of value chain governance structures typically observed in agricultural value chains. Second, it will identify some of the key constraints on value chain development. Finally, it will review the empirical evidence on how these constraints can be overcome through alterations in value chains’ governance structures.¹⁰

⁹ Those which are more unique and less substitutable when taken to market (Kaplinsky, 2006).

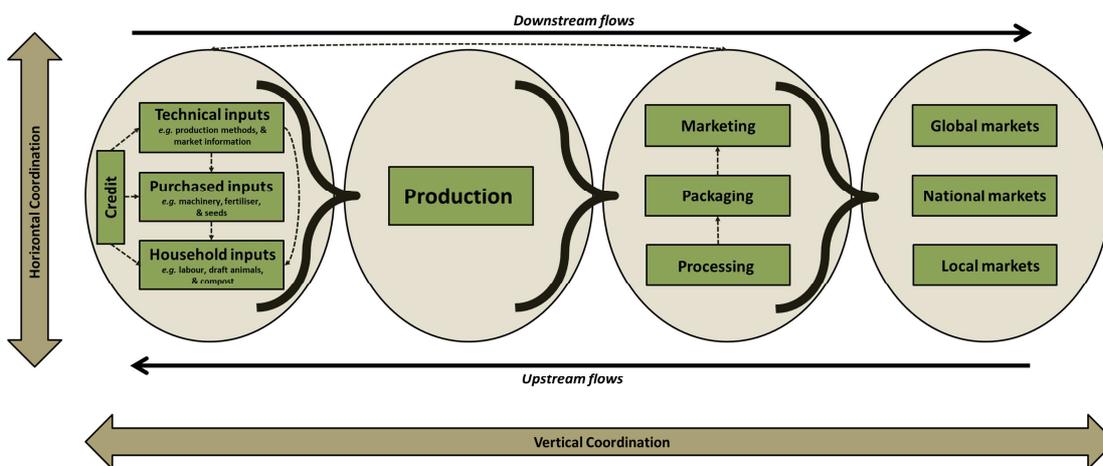
¹⁰ As this literature review focuses on the conditions under which value chain development can achieve pro-poor outcomes, the focus of this section has been on the effects of governance structures, rather than their determinants. For a discussion on the determinants of governance structure selection see Kula et al., 2006.

The analogy of a chain alludes to the interlinked relationships between value chain participants (Diagram 1). These interlinked relationships – or linkages – between and within value chain segments enable a product to move downstream (i.e. from its inception to final market), and for credit, information, and inputs to move upstream (Kula et al., 2006; Henriksen et al., 2010; Stamm and von Drachenfels, 2011). For value chain participants to function effectively, some coordination mechanism is necessary (Humphrey and Schmitz, 2001; Kaplinsky and Readman, 2001; Kula et al., 2006; Sautier et al., 2006; Rich et al., 2009; UNIDO, 2009; Vavra, 2009; Riisgaard and Ponte, 2011).

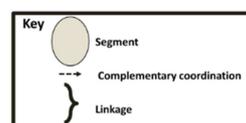
Christopher Barrett (2011) identifies three forms of coordination that can fulfil this role (see Diagram 1)

- i. vertical coordination, which exists between value chain participants of different segments
- ii. horizontal coordination, which exists between value chain participants of the same segment, and
- iii. complementary coordination, which exists between value chain participants that offer complementary services.

Diagram 1: Conceptualisation of an agricultural value chain



Source: Authors' compilation



These different forms of coordination combine to define the overall value chain governance structure. While different types of governance structures are identified within the literature, there is consensus that they exist along a spectrum (see Table 1) (Swinnen and Maertens, 2006; Sautier et al., 2006; Bijman, 2008; Gyau and Spiller, 2008; Vermeulen et al., 2008; Vavra, 2009; Webber and Labaste, 2010; Torero, 2011; Minot, 2011).

Table 1: Types of governance structures



Full integration				Hierarchical relationships
Production-management contract	Outgrower scheme	Contract farming	Production Contracts	Direct relationships
	Long-term production contract	Production contracts		
Resource-providing contract	Seasonal marketing contract	Marketing contracts	Marketing Contracts	Balanced relationships
	Seasonal handshake arrangement	Long-term relationships		
Market specifying contract				
Spot markets				Market relationships
Mighell & Jones (1963), cited in Minot (2011, p.6)	Vermeulen et al. (2008)	Gyau & Spiller (2008)	Vavra (2009)	Webber & Labaste (2010)

Source: Authors' compilation

At one end of the spectrum are spot markets. Horizontal and vertical coordination in spot markets are minimal, as they are characterised by many buyers and sellers. This leads to a lack of repeated interactions, limited information sharing, significant flexibility, and independence (Webber and Labaste, 2010). In spot markets, price signals replace horizontal and vertical coordination as the principal coordinating mechanism (Kirsten and

Sartorius, 2002; Bijman, 2008; Vavra, 2009). Commodities typically produced and traded in spot markets include staple root vegetables, cereals and pulses (Vermeulen et al., 2008; Minot, 2011).

At the other end of the spectrum is full integration. In the context of full integration, all value chain activities are internalised by a single participant, with horizontal and vertical coordination also internalised (Kirsten and Sartorius, 2002; Bijman 2008; Webber and Labaste, 2010; Minot, 2011). Full integration complements commodities which are most economically produced at scale, such as sugarcane, oil palm, and rubber, as well as commodities which have high operational standards (Vermeulen et al., 2008; Minot, 2011).

Situated between these two extremes are a number of intermediary types of value chain governance structures (Wainaina et al., 2012). While governance of the value chain can be a function of either horizontal or vertical coordination, vertical coordination typically precedes horizontal coordination (Kula et al., 2006). Vavra (2009) identifies two intermediary types of coordination: marketing and production contracts. Marketing contracts refer to pre-production agreements on the terms of sale (e.g. quantity, quality, timing, and price), while production contracts refer to agreements that include pre-production assistance (e.g. credit, information, and inputs). Gyau and Spiller (2008) add two additional types, categorising governance structures along a spectrum from long-term relationships, marketing contracts, production contracts, and contract farming. Webber and Labaste (2010) phrase this variation differently, listing: market relationships (i.e. spot markets), balanced relationships, direct relationships, and hierarchical relationships (i.e. vertical integration). Vermeulen and colleagues (2008) introduce the concept of an outgrower scheme. An outgrower scheme enables processors to guarantee a minimum level of supply through production on their own plantation, with any unmet demand purchased from smallholder producers (Gyau and Spiller, 2008; Minot, 2011).

To better understand the usefulness of these governance structures, an understanding of the key constraints on value chain development are necessary. Those identified in the literature include: (i) high transaction costs due to high transportation costs and poor physical infrastructure; (ii) poor information flows, resulting in information asymmetry in

buyer-seller relationships; (iii) low human capital stock; (iv) lack of foreign direct investment in high value commodities; (v) low value final markets; (vi) weak legal institutions; and (vii) high costs of production inputs (Minten et al., 2009; Shelley, 2011; Adekunle et al., 2012; World Bank, 2013).

For example, poor infrastructure can be a substantial barrier to participation in value chains as it: (i) increases transportation costs¹¹; (ii) exacerbates commodity-specific issues like perishability; and (iii) limits access and the ability to respond to final markets (UNIDO, 2009; Dorward et al., 2011; Torero 2011; Asenso-Okyere and Jemaneh, 2012). These constraints combine to increase the production and transaction costs (i.e. marketing costs) for all value chain participants. Cadot and colleagues (2006, p.4) find evidence that marketing costs for remote Madagascan producers ranged between 124 and 153 per cent of the average subsistence farmer's annual profits. Similarly, Shelley (2011, p.17) find that poor access to markets meant that 80 per cent of Mongolian raw cashmere in 2003 was sold at farm gate prices 10 to 45 per cent below the market price.

It has been suggested that marketing costs are especially prohibitive for high value commodities (Kirsten and Sartorius, 2002; Minot, 2011; ul Haq, 2012). This is because high value commodities are typically more perishable, prone to volatile prices, and have higher operational standards (Birthal et al., 2005; Bijman, 2008; Torero, 2011). Their high perishability requires investment in specific infrastructure assets, such as refrigerated transportation and cold storage (Kirsten and Sartorius, 2002; Birthal et al. 2005). Yet access to such infrastructure support can be scarce. Evidence suggests that across India, cold storage facilities are only capable of storing 10 per cent of the total output of perishable commodities (Birthal et al. 2005 p.29; Birthal et al. 2008, p.27). Similarly, high value commodities susceptibility to price volatility is in turn due to the smaller volumes traded, greater perishability, and uncertainty of yield quantities (Birthal et al., 2005; Bijman, 2008; Brenton, 2012).

Over the last decade a number of authors have noticed a tendency towards increased coordination, particularly vertical coordination, and away from spot markets (Humphrey and Schmitz, 2001; Kirsten and Sartorius, 2002; Sautier et al., 2006; Swinnen, 2007;

¹¹ Typically the largest component of marketing costs (Barrett, 2011).

Swinnen and Vandeplass 2007). This increased coordination can help mitigate the constraints identified above by encouraging larger value chain participants to invest in value chain development in return for guarantees on product quality, quantity, and timeliness of delivery (Adekunle et al., 2012; Asenso-Okyere and Jemaneh, 2012). Paul Collier and Stefan Dercon (2009) suggest that increased coordination can best be achieved through lead firms that are able to exploit economies of scale in the trading, marketing, and storage of commodities.

Empirical evidence into the effect of increased coordination has indicated its association with (i) increased incomes; (ii) reduced transaction and production costs; (iii) improved information flows; (iv) greater access to capital; and (v) income smoothing effects.

A substantial body of quantitative research indicates that integrating producers into value chains with greater vertical coordination increases producer income. Warning and Key (2002, p.259) offer evidence that incomes for 32,000 contract producers in Senegal were 55 per cent higher than for non-contract producers. This finding has been corroborated by a variety of other studies, which associate greater vertical coordination with increased incomes, profitability, greater income stability, and shorter lean periods (BIRTHAL et al. 2008; Minten et al. 2009). However, while Gyau and Spiller (2008) also find that increased vertical coordination has a substantive and significant effect on improved economic performance, its effect on behavioural performance (e.g. trust) was statistically insignificant.

A strong body of literature suggests that participating in a horizontally and vertically coordinated value chain can enable poor producers to access appropriate technologies, secure inputs, access markets, and respond to market information (Kirsten and Sartorius, 2002; Bijman, 2008; Webber and Labaste, 2010; Barrett, 2011; Asenso-Okyere and Jemaneh, 2012; Wainaina et al., 2012). For example, Minten and colleagues (2009) find that on-farm monitoring of producers by lead firms can enable more efficient and effective use of compost and fertilisers. BIRTHAL and colleagues (2005) find that milk and spinach producers participating in marketing arrangements achieved slightly reduced production costs, but substantially reduced transaction costs compared to non-participating producers (see Table 2). These reductions in transaction costs were achieved because the contracting

buyer committed to collecting produce from local villages, providing input services, improving information, and enabling access to technologies at wholesale rates.

Table 2: Production and transaction costs of contract and non-contract producers in India (Rupees per ton)

Commodity	Contract farming			Non-contract farming		
	Production cost	Transaction cost	Total cost	Production cost	Transaction cost	Total cost
Milk	5,586	100	5,686	5,728	1,442	7,170
Chickens	808	38	846	27,322	90	27,412
Spinach	1,485	35	1,520	1,630	437	2,067

Source: BIRTHAL et al. (2005, p.16)

Increased coordination can also address the constraints on producers' access to capital (Minten et al., 2009; Seville et al., 2011; Jones and Webber, 2010; Donovan and Poole, 2011; Torero, 2011). Barrett (2011) argues that low incomes, limited resources, low productivity and vulnerability are mutually reinforcing constraints. First, low incomes prevent the accumulation of resources, limiting the opportunity to invest, which limits future incomes. Second, these limitations increase poor producers' risk exposure by increasing their sensitivity to exogenous shocks. Increased access to capital may therefore offer significant and noteworthy benefits.

Furthermore, increased coordination can smooth the seasonal variability in producers' incomes. Minten and colleagues (2009) find that a key benefit of contract production of green bean producers in Madagascar was the greater income smoothing and shortened lean periods experienced by producers. Meanwhile, Michelson and colleagues (2012) find that contract producers for Walmart experienced significantly less price volatility than other producers. A particularly prominent example of increased coordination resulting in

increased price stability and income smoothing has been the Fairtrade certification programme. In a study of 33 participating producers, Nelson and Pound (2009, p.8) find that 27 reported decreased price volatility, while 29 reported increased incomes.

However, the evidence suggesting that increased coordination can provide price stability and income smoothing effects should be treated with some caution. Attritional effects may skew the results towards a positive bias. To this end, Minot and colleagues (2009) argue that increased coordination may exhibit a positive effect on price stability and income smoothing, in part because those programmes that are ineffective do not survive long enough to be observed.

Meanwhile, a number of studies indicate that vertical coordination has had a negative impact on producers. To this end, Sautier and colleagues (2006) argue that the trend away from spot markets excludes smallholder producers and leads to the consolidation of agricultural holdings. Key and Runsten (1999) demonstrate that in Latin America, where producers have been excluded from value chains, this has exacerbated power inequalities. Furthermore, a number of studies published in Little and Watts (1994) find that although contract farming across Africa has increased incomes for contract farmers, these increases have come at the expense of increased social tensions and power imbalances in value chains. Meanwhile, a number of studies find that income stability and ease of selling, facilitated by lower transaction costs and reduced risk exposure, is more important than increased incomes (Minten et al., 2009; Singh, 2008; Neven et al., 2009; Michelson et al., 2012). It should also be recognised that a basic level of infrastructure is necessary to develop coordination (Birthal et al., 2005). Finally, Nicholas Minot estimates that less than 5 per cent of African farmers are currently engaged in vertically coordinated value chains (2011, p.5).

2.2. Discussion: Identifying the key factors affecting pro-poor outcomes

The purpose of this section is to develop the concepts introduced in Section 2.1 by (i) reorientating the focus to better account for the poor; and (ii) drawing explicit connections between concepts introduced in Chapter 1 and the empirical findings discussed in Section 2.1. In so doing, this section identifies ten key factors affecting the likelihood that the poor will benefit from participation in agricultural value chains. These ten key factors are

- i. Labour intensity
- ii. Asset specificity
- iii. Commodity differentiation
- iv. Long-run price stability
- v. Perishability
- vi. Time-horizon and frequency of benefits
- vii. Vertical coordination
- viii. Lead firm
- ix. Horizontal coordination
- x. Vertical integration by producers' associations

In order to utilise the concepts developed in the previous section (Section 2.1), this section assumes that anything observed to limit or undermine the participation of smallholders will have an effect of similar, if not greater magnitude on the participation of the poor. Furthermore, many of the concepts developed in the state-of-the-art are combined with one another, and with the understandings developed in donor documents, to develop an understanding of the poor's participation in value chains. Indeed, while the previous section lacked a focus on the poor due to the limitations in the empirical literature, this section explicitly focuses on their ability to participate in value chains, and to benefit from this participation.

These ten factors are developed in large part using the concepts and understandings already developed in Section 2.1. For the purposes of clarity and literary comprehension, these previously developed concepts are not re-referenced in this section. Any new concepts or source material introduced in this section — concepts and material not found in Section 2.1 — are referenced accordingly.

2.2.1. Labour intensity

The labour intensity of the production process has a significant bearing on the participation of poor producers. There are two principal reasons why this appears to be the case. First, the greater the labour intensity of production, the more labour is required to produce a given level of output. The resulting increase in labour demand would absorb a larger quantity of available rural labour than would otherwise be the case, allowing more individuals to benefit from value chain development. Second, as labour-intensive production processes typically require less start-up capital, these chains are less likely to erect barriers to entry. As such, it is more likely that poor producers will be able to freely enter and exit a labour-intensive value chain.

However, it is important to note that labour-intensive value chains may be characterised by a large number of smallholder producers. This would increase transaction costs for buyers, and may dissuade downstream actors from forming linkages with poor producers (Vorley et al., 2009). Alternatively, labour-intensive value chains may also take the form of large-scale farms that employ a significant number of workers. Under these circumstances, transaction costs are less problematic. Overall, labour-intensive value chains appear to distribute rents more equitably and reach a greater number of beneficiaries, but may struggle to engage downstream actors due to the potential for higher transaction costs.

2.2.2. Asset specificity

Asset specificity also appears to have a significant bearing on poor producers' participation in value chains. This is because more specific assets are less easily transferred to another

value chain should an existing production relationship fall apart. This affects both the value chain's dependency dynamic, as well as the distribution of market power among the value chain's participants (Visser et al., 2012). Recognising that the dependency dynamic can either favour or hurt poor producers, it is informative to differentiate according to the source of the investment. If producers invest in specific producer assets, they are likely to be dependent on maintaining the production relationship for which the investments were made. On the other hand, if a lead firm invests in specific producer assets, their dependence on maintaining the production relationship increases. In vertically coordinated value chains, lead firms often invest in poorer producers' assets — an occurrence that appears to empower the producer.

However, it is important to note that investments in general (i.e. transferable) assets also appear to benefit poor producers. Under such circumstances, producers accumulate assets that can improve their productive capabilities, irrespective of who makes the investment. Overall, producer investments in specific producer assets appear to hurt poor producers, while all other forms of investments in producer assets appear to benefit producers to varying degrees.

2.2.3. Commodity differentiation

Poor producers can also benefit from participation in value chains built around differentiated commodities. There are two principal reasons why this appears to be the case. First, value chains for differentiated commodities are characterised by high value final markets, which typically offer producers higher economic returns (World Bank 2013, p.49). This is achieved either through the production of high value cash crops, or by altering the underlying value proposition of a commodity, as is the case with Certified Organic and Fair Trade produce (Vorley et al., 2009). Second, the lessons drawn from the dependency dynamic as it relates to asset specificity can also be extended to commodity differentiation. The greater the degree of commodity differentiation, the fewer competitors producers face. Producers are therefore less easily replaced, skewing the dependency dynamic in their favour.

However, it is important to note that markets for differentiated commodities can have prohibitively high operational standards. These health and food safety standards could act as barriers to entry for poor producers. Yet overall, the production of more differentiated commodities appears to increase the value added by producers, and increase their market power vis-à-vis other value chain participants.

2.2.4. Long-run price stability

A commodity's long-run price stability appears to be crucial to poor producers' welfare, and to the achievement of pro-poor outcomes. This is because unstable prices increase poor producers' exposure to risk. A producer's decision to join a value chain is contingent on the assurance of stability and security (Vorley et al., 2009). Without stable returns, poor producers may struggle to meet their consumption needs, and will be incapable of planning their future value chain operations (Norell and Brand, 2012). Given the risk-averse nature of poor producers, any sudden threat to producer income can undermine their welfare, and their ability to remain active in the value chain. While contract schemes may help mitigate the risks of volatile prices, any long-term downward pressure on prices is likely to be passed on to producers during contract renegotiations. Overall, commodities and mechanisms that increase long-run price stability appear to reduce poor producers' exposure to economic risks.

2.2.5. Perishability

A commodity's perishability has a significant bearing on the terms by which poor producers participate in value chains. There are two principal reasons why this appears to be the case. First, the production of perishable commodities can skew the distribution of market power in favour of downstream actors (World Bank 2013, p.10). The more perishable a commodity, the shorter the time-frame in which producers can search for a suitable buyer. Buyers can exploit this favourable market position to put downward pressure on prices — unfavourable pricing that poor producers may nevertheless be willing to accept, as it is preferable to receiving no income whatsoever. Second, the effects of this skewed distribution of market power may undermine price stability in a manner similar to that

caused by exogenous economic factors (Section 2.2.4). If producers are unable to sustain their consumption patterns due to downward pressure on prices for their perishable crops, their welfare may be jeopardised.

However, there appear to be a variety of means by which the risks of producing perishable crops can be mitigated. Producers can collectively invest in the storage infrastructure needed to preserve the commodities. Alternatively, contract schemes provide a guaranteed market for producer output, circumventing the issues that arise in trying to sell perishable commodities. Overall, despite the possibility for interventions to mitigate producers' risk exposure, increased commodity perishability appears to have a negative effect on poor producers' participation in value chains.

2.2.6. Time horizon and frequency of benefits

A commodity's time horizon and frequency of benefits are vital poor producers' welfare, and thus to the achievement of pro-poor outcomes. Similar to long-run price stability (Section 2.2.4), poor producers' consumption patterns and risk aversion are of the utmost importance. Prolonged periods in which income is not generated are problematic given poor producers' lack of savings. As such, seasonal commodities appear to be less conducive to the needs of the poor than those that offer consistent incomes throughout the year. Even if seasonal work were to generate a higher net income, the poor have often been observed to prioritize income stability due to their particular consumption needs (Michelson et al., 2012). Furthermore, given their limited assets, poor producers are also unlikely to be willing or able to wait a significant period of time to see a return on their investment (Norell and Brand 2012, p. 74). Commodities such as coffee that require several years before producing the intended output appear to be much less conducive to the needs of the poor.

However, institutional mechanisms can be used to mitigate the risks of producing seasonal crops. For instance, investment in storage facilities may allow poor producers to retain a portion of their output for out-of-season sale. In doing so, producers would not only

generate a more regularised income, but would also be capable of selling their crops at what are often higher out-of-season prices. Overall, commodities that do not meet poor producers' needs for regularised income appear to undermine their welfare, and thus the achievement of pro-poor outcomes.

2.2.7. Vertical coordination

Vertical coordination can have a significant bearing on poor producers' participation in value chains. This appears to be the case for two principal reasons. First, vertical coordination can increase and stabilise poor producers' access to markets. Through the formation of strong vertical linkages, producers can gain access to market demand that can absorb their supply. This offers income-generating opportunities that may otherwise not have been available. Strong linkages can also stabilise income through price and quantity guarantees. Such post-production guarantees can produce mutually beneficial outcomes for participating value chain actors. For poor producers this can include increased productivity and guaranteed prices. For buyers this can include guaranteed quality, quantity, and timing of deliveries.

Second, vertical coordination can provide producers with the inputs needed to participate in particular value chains. Poor producers often lack the capital, knowledge, and technology necessary to recognise and respond to market signals. Through production contracts, downstream actors provide poor producers with these necessary inputs, facilitating their participation in the value chain.

However, for vertical coordination to achieve mutually beneficial outcomes, a sensitive balance must be found between excess and insufficient competition among buyers. On the one hand, if vertical coordination in a value chain is excessive, lead firms will be able to abuse their market power to extract a disproportionate level of rents from a value chain. On the other hand, if there is excessive competition among buyers, producers may engage in opportunistic behaviour, including "side-selling" to a contractor's rival firms. Where producers engage in side-selling, the incentive for contractors to engage directly with

producers is undermined, and may cause contracting firms to withdraw their pre-production guarantees to producers. Overall, greater vertical coordination appears to benefit poor producers. Yet beyond a certain threshold, vertical coordination may significantly skew the distribution of market power in favour of downstream actors.

2.2.8. Lead firm

In value chains with strong vertical coordination, the type of lead firm — a firm that guides the development and management of the value chain (UNIDO, 2009; Bolwig et al., 2008) — can have a significant bearing on poor producers' participation. This is driven by the fact that some lead firm configurations appear more willing and capable of offering pre-production assistance than others. In particular, the size of a lead firm may affect the ability to provide poor producers with pre-production assistance (Raswant and Khanna 2010, p. 13-14; Roduner 2007, p. 12). Smaller firms may be less capable of incurring the short-term costs associated with outgrower schemes, and may therefore be less willing to form production contracts with poor producers than are large firms and multinationals. Overall, it appears that the larger the lead firm, the more likely it may be to provide poor producers with the necessary productive inputs.

2.2.9. Horizontal coordination

The degree of horizontal coordination can have an influential impact on poor producers' participation in value chains. This appears to be the case for two principal reasons. First, horizontal coordination can reduce transaction costs involved in dealing with other value chain participants. Transaction costs can be reduced by empowering poor producers to aggregate individual buyer and seller power to achieve collective efficiencies (Raswant and Khanna, 2010). For example, the costs of technical or input assistance can be reduced through bulk purchasing, while post-harvest aggregation can reduce the transaction costs for buyers, enabling producers to negotiate higher prices (World Bank 2013, p.10). Additionally, increased horizontal coordination can facilitate information sharing among producers regarding best practices, leading to efficiency gains. Second, increased horizontal coordination can increase producers' collective market power (Berg et al. 2006, p. 22). By

aggregating their activities, poor producers can transact with other market actors as if operating as a single, larger producer. An increase in market power is also driven by the pooling of poor producers' exposure to risk (Norell and Brand 2012, p. 61). Collectively exposed to less risk, poor producers are able to make more credible threats when negotiating over transactions, and are also more attractive to investors and creditors.

However, horizontal coordination may: (i) contribute to the further marginalisation of poor producers who are not linked to the coordinating organisations; and (ii) indirectly harm those members of the rural poor engaged in small-scale processing or trading, as well-organised producers may bypass local value chain intermediaries and sell directly to wholesalers. Yet overall, greater horizontal coordination appears to be highly beneficial for those poor producers able to participate in producers' associations.

2.2.10. Vertical integration by producers' associations

Vertical integration by producers' associations can also have a significant bearing on poor producers' participation in value chains. This appears to be the case for two principal reasons. First, vertical integration by producers affects the distribution of rents in a value chain. If processing facilities are collectively owned by a targeted group of producers, this is likely to increase their share of the total value generated in the value chain (Berg et al. 2006, p. 39). Second, collective ownership of such facilities would also affect the distribution of market power in a value chain. Not only are producers aggregating their output, they are also circumventing the need to transact with independent processors. In so doing, the product that producers ultimately sell is likely to be more valuable, and significantly less perishable. This may increase producers' negotiating position when transacting with buyers, and by extension, their market power. Overall, vertical integration by producers' associations appears to have a positive effect on poor producers' participation in value chains.

2.3. Typology: The six principal determinants of pro-poor outcomes

For analytical purposes, it is necessary to synthesise these numerous factors into a more manageable set of determinants of pro-poor outcomes. Each of these determinants can be considered to represent a spectrum of possibilities, rather than an absolute. As one moves along these broad spectrums of possibilities, the likelihood of achieving pro-poor outcomes increases or decreases, depending on the direction.

This emphasis on the likelihood of producing pro-poor outcomes is absolutely critical. It is not possible to definitively say whether a particular arrangement of determinants will or will not benefit the poor. As highlighted in the literature review, the connection between value chain characteristics and pro-poor outcomes is highly contextual. This makes definitive and absolute statements unsubstantiated, and highly problematic.

The six key determinants of the likelihood that value chains will achieve pro-poor outcomes are

- i. labour intensity
- ii. specificity
- iii. resilience
- iv. perishability
- v. income smoothing
- vi. the governance of linkages

It is important to note that not all of these determinants will necessarily affect pro-poor outcomes in each and every value chain project. It is also possible that a particular value chain intervention will satisfy pro-poor characteristics of one determinant, while simultaneously failing to meet the pro-poor characteristics of another. For instance, while the production of cassava is generally quite labour intensive (FAO, 2008), so too does its

high perishability (Berg et al., 2006) reduce poor producers' market power. Ceteris paribus, cassava would simultaneously be expected to improve and limit the likelihood of achieving pro-poor outcomes. This further highlights the importance of context-specific factors, and the weighing of the likely impact of these individual determinants through careful value chain analysis. These six determinants are discussed in Table 3.

Table 3: Six principal determinants of pro-poor outcomes

Determinant	Description	Examples
Labour intensity	A commodity's tendency towards labour- or capital-intensive production.	<p>Greater labour intensity: cassava, cocoa, fruits, vegetables, tobacco, Certified Organic</p> <p>Greater capital intensity: maize, rice, wheat</p>
Specificity	The specificity of producers' assets and the degree of product differentiation, jointly affecting a value chain's dependency dynamic.	<p>More differentiated commodities: Certified Organic, Fair Trade, niche fruits and vegetables</p> <p>More undifferentiated commodities: maize, rice, wheat</p> <p>Investment in specific producer assets: meeting operational standards of a given value chain</p>

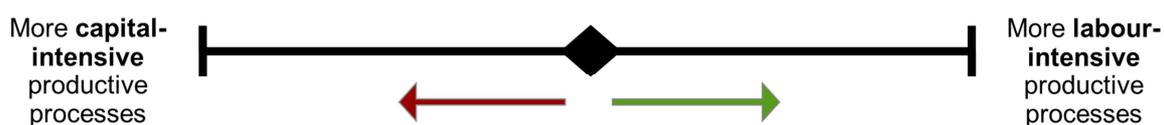
Resilience	A commodity's ability to withstand exogenous environmental and economic shocks.	<p>Environmental resilience: pearl millet, sorghum, legumes, cassava</p> <p>Environmental vulnerability: maize, barley</p> <p>Economic resilience: maize, pearl millet</p> <p>Economic vulnerability: root crops</p>
Perishability	The time-frame in which a commodity's quality deteriorates.	<p>Less perishable: maize, rice, wheat</p> <p>More perishable: cassava, yams, potatoes, onions</p>
Income smoothing	A producer's ability to generate a stable, year-round income.	<p>Greater income smoothing: honey, irrigated crops, fertilisers</p> <p>Less income smoothing: coffee, seasonal cash crops</p>
Governance of linkages	The degree of horizontal and vertical coordination.	Pro-poor coordination: limited buyer competition, producer cooperation, input provision, contractual relationships

Source: Authors' compilation

2.3.1. Labour intensity

The labour intensity of the production process is an important determinant of the distribution of the value added within the production segment. The more labour-intensive the production process, the greater the demand for labour. Under such circumstances, it is likely that income will be distributed more equitably than would otherwise be the case, as discussed in Section 2.2.1. This is depicted along the horizontal labour intensity spectrum (see Figure 2).

Figure 2: Labour-intensity spectrum



Source: Authors' compilation

Figure 2 presents labour intensity along a single dimension. Value chains can be positioned anywhere along the horizontal axis. A value chain positioned on the right-hand side indicates a greater likelihood that a value chain will positively affect poor producers. A value chain positioned on the left-hand side indicates the opposite effect.

Right-hand side (+)

The right-hand side of the spectrum represents commodities characterised by increasingly labour-intensive production techniques. The further ones moves in this direction, the greater the likelihood that value chains will be conducive to the poor. For example, cash crops such as cocoa, tobacco, cassava, fruits and vegetables are often efficiently produced using labour-intensive production techniques.

Left-hand side (-)

The left-hand side of the spectrum represents an increasing emphasis on capital-intensive agriculture. The further one moves in this direction, the less likely it is that value chains will be conducive to the poor. For example, rice and maize are often most efficiently produced using capital-intensive production techniques, with a correspondingly marginal impact on labour demand.

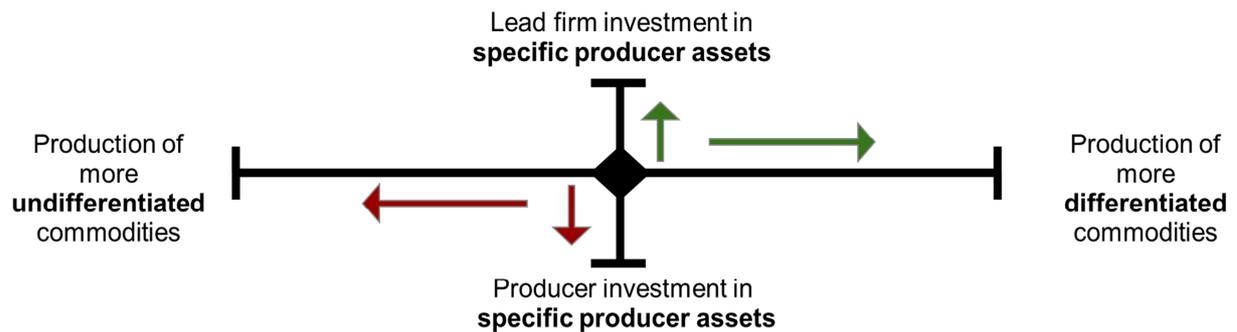
2.3.2. Specificity

Specificity refers to the degree of differentiation of both a producer's assets, as well as that of the commodity produced. Underlying this determinant of pro-poor outcomes is the dependency dynamic discussed in Section 2.2.2 and 2.2.3. The more the dependency dynamic favours producers — the more downstream actors are dependent on maintaining a production relationship with the target group — the greater the likelihood of achieving pro-poor outcomes.

Specifically, investment in specific producer assets could affect the dependency dynamic in a range of ways. At one end, investment by a lead firm in specific producer assets is likely to increase the lead firm's dependency on maintaining the production relationship with existing producers. At the other end, investment by producers in their own specific assets is likely to increase their dependency on maintaining the production relationship with existing buyers. This is depicted vertically along the asset specificity spectrum (see Figure 3).

Simultaneously, the production of more differentiated commodities is likely to make producers less replaceable, increasing their market power. Such differentiation also has a significant impact on the total value added by the chain, and in particular that which is added at the production link; more differentiated commodities are typically higher in value than their undifferentiated counterparts, with much of this additional value added by producers themselves. This is depicted horizontally along the commodity differentiation spectrum (see Figure 3).

Figure 3: Specificity spectrum



Source: Authors' compilation

Figure 3 presents two dimensions of specificity that affect the likelihood of achieving pro-poor outcomes. Value chains can be positioned anywhere on either the vertical or horizontal axes. A value chain positioned closer to the top-right corner indicates a greater likelihood that a value chain will positively affect poor producers. A value chain positioned in the bottom-left corner indicates the opposite effect.

Top-right quadrant (+)

The top-right quadrant represents the production of relatively differentiated commodities (x-axis) and lead firm investment in specific producer assets (y-axis). A positioning in this quadrant indicates the highest likelihood of achieving pro-poor outcomes. For example, production of Fair Trade coffee, with a lead firm investing in producers' capacities to meet the operational standards of the value chain.

Top-left quadrant (-/+)

The top-left quadrant represents the production of relatively undifferentiated commodities (x-axis) and lead firm investment in specific producer assets (y-axis). A chain positioned in this quadrant may achieve pro-poor outcomes. For example, production of medium-grade apples destined for export markets, with a lead firm investing in producers' capacities to meet the operational standards of the value chain.

Bottom-right quadrant (+/-)

The bottom-right quadrant represents the production of differentiated commodities (x-axis) and producer investment in specific producer assets (y-axis). Once again, a chain positioned in this quadrant may achieve pro-poor outcomes. For example, production of high-grade livestock, which may involve producer investment in meeting food safety standards.

Bottom-left quadrant (-)

The bottom-left quadrant represents the production of undifferentiated commodities (x-axis) and producer investment in specific producer assets (y-axis). A chain positioned in this quadrant is unlikely to achieve pro-poor outcomes. For example, production of spinach, which may involve producer investment in specific assets to meet food safety standards relating to e-coli.

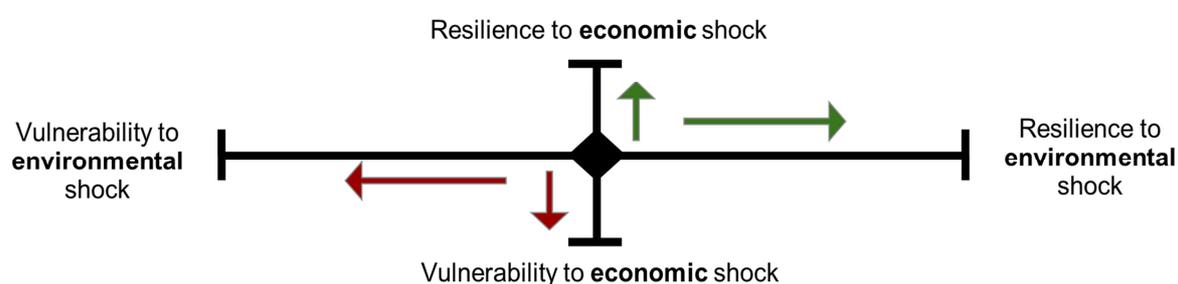
2.3.3. Resilience

Resilience focuses first and foremost on producer income. Protecting poor producers' incomes is of the utmost importance given their general lack of savings with which to cushion themselves from exogenous shocks (Norell and Brand, 2012). This income is contingent on maintaining a consistent level of output, and on preventing the price of the producer's output from falling, as discussed in Sections 2.2.4 and 2.2.6. There are two types of exogenous shock that could threaten producer incomes.

The first threat is via environmental shock. A drought that decimates a producer's output will significantly undermine his/her income, particularly in those regions that lack (or possess underdeveloped) crop insurance schemes. A commodity's vulnerability to water stress — or any other exogenous environmental shock — will therefore have a significant impact on efforts to reduce poverty (World Bank, 2013). This is depicted horizontally along the environmental resilience spectrum (see Figure 4).

The second threat is via economic shock. The resilience of a commodity's price in the face of economic shock — resilience typically derived from a high elasticity of demand — can have a significant bearing on the stability of a producer's income. Commodities prone to price volatility may limit a value chain's pro-poor potential. This is depicted vertically along the economic resilience spectrum (see Figure 4).

Figure 4: Resilience spectrum



Source: Authors' compilation

Figure 4 presents two dimensions of resilience that affect the likelihood of achieving pro-poor outcomes. Value chains can be positioned anywhere on either the vertical or horizontal axes. A value chain positioned closer to the top-right corner indicates a greater likelihood of positively affecting poor producers. A value chain positioned in the bottom-left corner indicates the opposite effect.

Top-right quadrant (+)

The top-right quadrant represents the production of economically resilient (y-axis), and environmentally resilient (x-axis) commodities. A value chain situated in this quadrant is likely to achieve pro-poor outcomes. For example, pearl millet is both drought resistant, and possesses a high elasticity of demand.

Top-left quadrant (-/+)

The top-left quadrant represents the production of environmentally vulnerable (x-axis), yet economically resilient (y-axis) commodities. A value chain situated in this quadrant may achieve pro-poor outcomes. For example, maize is typically vulnerable to drought (Barratt et al., 2006), yet has a high elasticity of demand due to its use as cattle feed, among others.

Bottom-right quadrant (+/-)

The bottom-right quadrant represents the production of environmentally resilient (x-axis), yet economically vulnerable (y-axis) commodities. Once again, a value chain situated in this quadrant may achieve pro-poor outcomes. For example, cassava is typically drought resistant (Barratt et al., 2006), yet may be prone to fluctuations in price due to its high perishability.

Bottom-left quadrant (-)

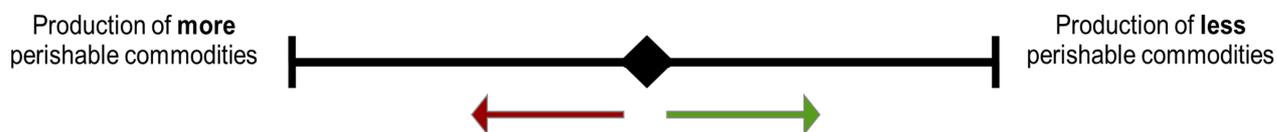
The bottom-left quadrant represents the production of environmentally vulnerable (x-axis) and economically vulnerable (y-axis) commodities. A value chain situated in this quadrant has a low likelihood of achieving pro-poor outcomes. For example, coffee is reasonably vulnerable to drought (Cheserek and Gichimu, 2012), and may be susceptible to price variability due to its limited non-food uses.

2.3.4. Perishability

A commodity's perishability is an important determinant of the distribution of market power in a value chain, and can ultimately undermine the stability of producer income. When asset-poor producers lack adequate storage capacity, the production of perishable commodities may limit their bargaining power at the point of sale. As discussed in Section 2.2.5, this may empower downstream actors to drive down prices during the negotiation process. This is depicted horizontally along the perishability spectrum (see

Figure 5).

Figure 5: Perishability spectrum



Source: Authors' compilation

Figure 5 presents perishability on a single dimension as it relates to the achievement of pro-poor outcomes. Value chains can be positioned anywhere along the horizontal axis. A value chain positioned on the right-hand side indicates a greater likelihood of positively affecting poor producers. A value chain positioned on the left-hand side indicates the opposite effect.

Right-hand side (+)

The right-hand side of the spectrum represents the production of less perishable commodities. A value chain situated on this side of the spectrum is more likely to achieve pro-poor outcomes. For example, staple crops such as maize, rice and wheat can be preserved for extended periods of time.

Left-hand side (-)

The left-hand side of the spectrum represents the production of more perishable commodities. A value chain situated on this side of the spectrum is less likely to achieve pro-poor outcomes. For example, root crops such as cassava, potatoes and yams are particularly perishable. Unless sold for processing, cassava typically rots within 2-3 days after harvest (Berg et al., 2006).

2.3.5. Income smoothing

Smoothing a poor producer's income is of vital importance to achieving substantive pro-poor outcomes in value chain interventions. This demographic's vulnerability makes them more dependent on receiving a stable and consistent income with which to purchase basic necessities (Norell and Brand, 2012). As discussed in Section 2.2.6, commodities that generate stable income throughout the year are more conducive to meeting poor producers' needs. In those value chains in which the commodity is not conducive to the poor's needs, various other mechanisms and institutions can be employed to smoothen producer incomes. This is depicted horizontally along the income smoothing spectrum (see Figure 6).

Figure 6: Income smoothing spectrum



Source: Authors' compilation

Figure 6 presents income smoothing on a single dimension as it relates to the achievement of pro-poor outcomes. Value chains can be positioned anywhere along the horizontal axis. A value chain positioned on the right-hand side indicates a greater likelihood that a value chain will positively affect poor producers. A value chain positioned on the left-hand side indicates the opposite effect.

Right-hand side (+)

The right-hand side of the spectrum represents a stronger capacity to smoothen producer income, either due to commodity-specific or institutional factors. A value chain situated on this side of the spectrum has a higher likelihood of achieving pro-poor outcomes. For

example, honey is conducive to year-round production, given a suitable climate. In the absence of such income-smoothing commodities, mechanisms such as outgrower schemes can similarly smooth producer income.

Left-hand side (-)

The left-hand side of the spectrum represents a weaker capacity to smoothen producer income. A value chain situated on this side of the spectrum is less likely to achieve pro-poor outcomes. For example, coffee can take up to five years after the initial planting before producing a harvestable crop (Norell and Brand 2012, p. 74) — a time lag that stagnates, rather than smooths producer income.

2.3.6. Governance of linkages

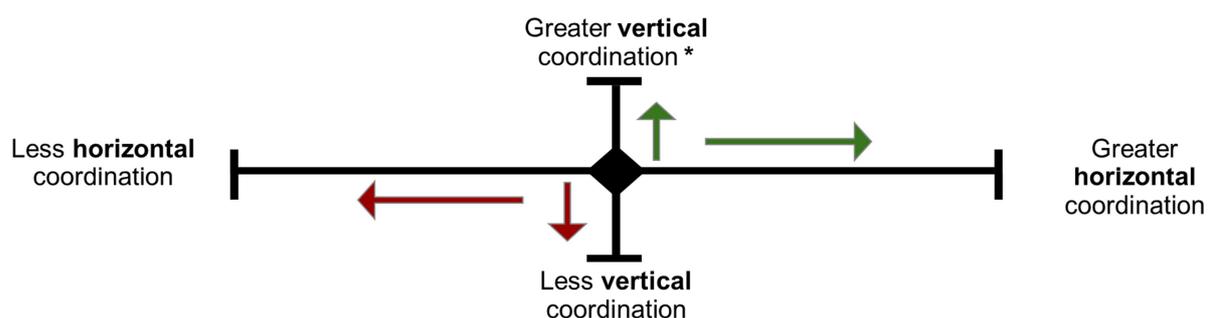
The means by which market linkages are governed can have a significant impact on the poor's participation in value chains, and the terms by which this participation occurs. Governance structures can also compensate for a lack of pro-poor characteristics in the typology's other key determinants. Pivotal to this are the effects of vertical and horizontal coordination.

The means by which market linkages are governed can have a significant impact on the poor's participation in value chains, and the terms by which this participation occurs. Governance structures can also compensate for a lack of pro-poor characteristics in the typology's other key determinants. Pivotal to this are the effects of vertical and horizontal coordination.

As discussed in Section 2.2.7, increased levels of vertical coordination can offer significant benefits for the poor. Vertical coordination can result in: (i) increased and stable access to markets; and (ii) pre-production assistance. Yet beyond a certain level, vertical coordination can grant buyers significant market power. This is depicted vertically along the vertical coordination spectrum (see Figure 7).

As discussed in Section 2.2.8, increased levels of horizontal coordination can also be beneficial for the poor. Horizontal coordination can result in: (i) reduced transaction costs when dealing with buyers; (ii) the aggregation of purchasing power, and (iii) increased market power for producers. The latter can be particularly beneficial in chains with high degrees of vertical coordination, and serve as a means of mitigating the accumulation of excess market power in the hands of buyers. This is depicted horizontally along the horizontal coordination spectrum (see Figure 7).

Figure 7: Governance of linkages spectrum



Source: Authors' compilation

* Increased vertical coordination is beneficial up to a certain point. Beyond this point, net benefits for producers are likely to decline as buyers accumulate excessive market power.

Figure 7 presents two dimensions of linkage governance that affect the likelihood of achieving pro-poor outcomes. Value chains can be positioned anywhere on either the vertical or horizontal axes. A value chain positioned closer to the top-right corner indicates a greater likelihood that a value chain will positively affect poor producers. A value chain positioned in the bottom-left corner indicates the opposite effect.

Top-right quadrant (+)

The top-right quadrant represents a value chain with strong horizontal coordination (x-axis) and strong vertical coordination (y-axis). A value chain situated in this quadrant has the highest likelihood of achieving pro-poor outcomes. For example, a value chain vertically coordinated using contract schemes, and in which producers are organised into strong producers' associations.

Top-left quadrant (-/+)

The top-left quadrant represents a value chain with weak horizontal coordination (x-axis), and strong vertical coordination (y-axis). A value chain situated in this quadrant may achieve pro-poor outcomes. For example, a value chain vertically coordinated using outgrower schemes, and in which fragmented producers compete for the limited number of contract positions.

Bottom-right quadrant (+/-)

The bottom-right quadrant represents a value chain with strong horizontal coordination (x-axis) and weak vertical coordination (y-axis). Once again, a value chain situated in this quadrant may achieve pro-poor outcomes. For example, a spot market-based value chain operating largely on the basis of price signals, and in which producers cooperate extensively through strong producers' associations.

Bottom-left quadrant (-)

The bottom-left quadrant represents a value chain with weak horizontal coordination (x-axis) and weak vertical coordination (y-axis). A value chain situated in this quadrant is unlikely to achieve pro-poor outcomes. For example, a spot market-based value chain operating on price signals, in which many fractured producers compete to supply an array of buyers.

Chapter Three

The following chapter is intended to illustrate the explanatory power of the typology. In particular, this chapter attempts to demonstrate how the typology could be applied during the analysis and design stages of a value chain intervention to develop projections as to their likelihood of achieving pro-poor outcomes. This is done with the expectation that such projections, and by extension the typology itself, will be tested through future field-based research.

The typology developed in this document is an instrument in development. While it could eventually be used to guide project design, it should first be tested using current value chain projects. This process of testing the typology's explanatory power is not intended to test its validity, but rather to identify and improve its usefulness. Such testing represents the next step in building this useful analytical tool, which can be used to guide future value chain projects so as to achieve the most substantive pro-poor outcomes possible.

This chapter is structured around three sections. First, the chapter presents a matrix of eight IFAD value chain projects. The purpose of this matrix is to provide an indication of the extent to which the design of these particular projects address and mention the determinants of pro-poor outcomes established in the typology. The second and third sections explore the Vegetable Oil Development Project, Phase 2 in Uganda and the Pro-Poor Value Chain Development Project in Mozambique in greater detail. These projects were chosen because of their greater availability of information against which to apply the typology. The purpose of these sections is to demonstrate how the typology could be applied to develop hypotheses regarding their likelihood of achieving pro-poor outcomes. While we are constrained in our ability to do so, the expectation is that the validity of these, or similar hypotheses could later be tested through interim evaluations and household-level impact assessments (see Appendix).

3.1. IFAD project designs

This section examines the extent to which eight IFAD value chain project designs consider the factors identified in the typology. A preliminary list of value chain interventions was created using Raswant and Khanna (2010) and Hartmann and Hamp (forthcoming). Projects that had been completed were excluded so as not to bias our hypotheses. This list was further reduced due to the limited availability of detailed Project Design reports. Given the non-random selection process and small sample size, the aim of the matrix is to give a limited indication of the present consideration given to the typologies factors in what are assumed to be IFAD’s more detailed project designs. The matrix does not intend to draw inferences to any other IFAD value chain projects.

Matrix 1: Attention given to typology characteristics in eight IFAD Value Chain Project Designs (1= Not addressed and not mentioned; 2= Addressed, but not mentioned; 3= Addressed and mentioned)

Programme/Project	Labour intensity	Specificity	Resilience	Perishability	Income smoothing	Governance of linkages
<i>Vegetable Oil Development Project – Phase 2 (Uganda)</i>	2	2	2	3	2	2
<i>Value Chain Development Programme (Nigeria)</i>	2	1	1	3	1	1

<i>Upper Tana Catchment Natural Resource Management Project (Kenya)</i>	1	1	3	3	1	1
<i>Smallholder Productivity Promotion Programme (Zambia)</i>	3	2	3	2	1	2
<i>Women's Empowerment and Livelihoods Programme in the Mid-Gangetic Plains (India)</i>	3	2	2	3	2	1
<i>Jharkhand Tribal Empowerment and Livelihood Project (India)</i>	2	1	3	3	1	1
<i>Mitigating Poverty in Western Rajasthan Project (India)</i>	1	2	3	3	1	2
<i>Pro-poor Value Chain Development Project in the Maputo and Limpopo Corridor (Mozambique)</i>	2	2	3	3	2	2

Source: Authors' compilation, based on IFAD, 2010a; 2010b; 2010c; 2011c; 2012a; 2012b; 2012c; 2012d)

3.2. Vegetable Oil Development Project - Phase 2 (Uganda)

Box 1: Vegetable Oil Development Project - Phase 2 project figures

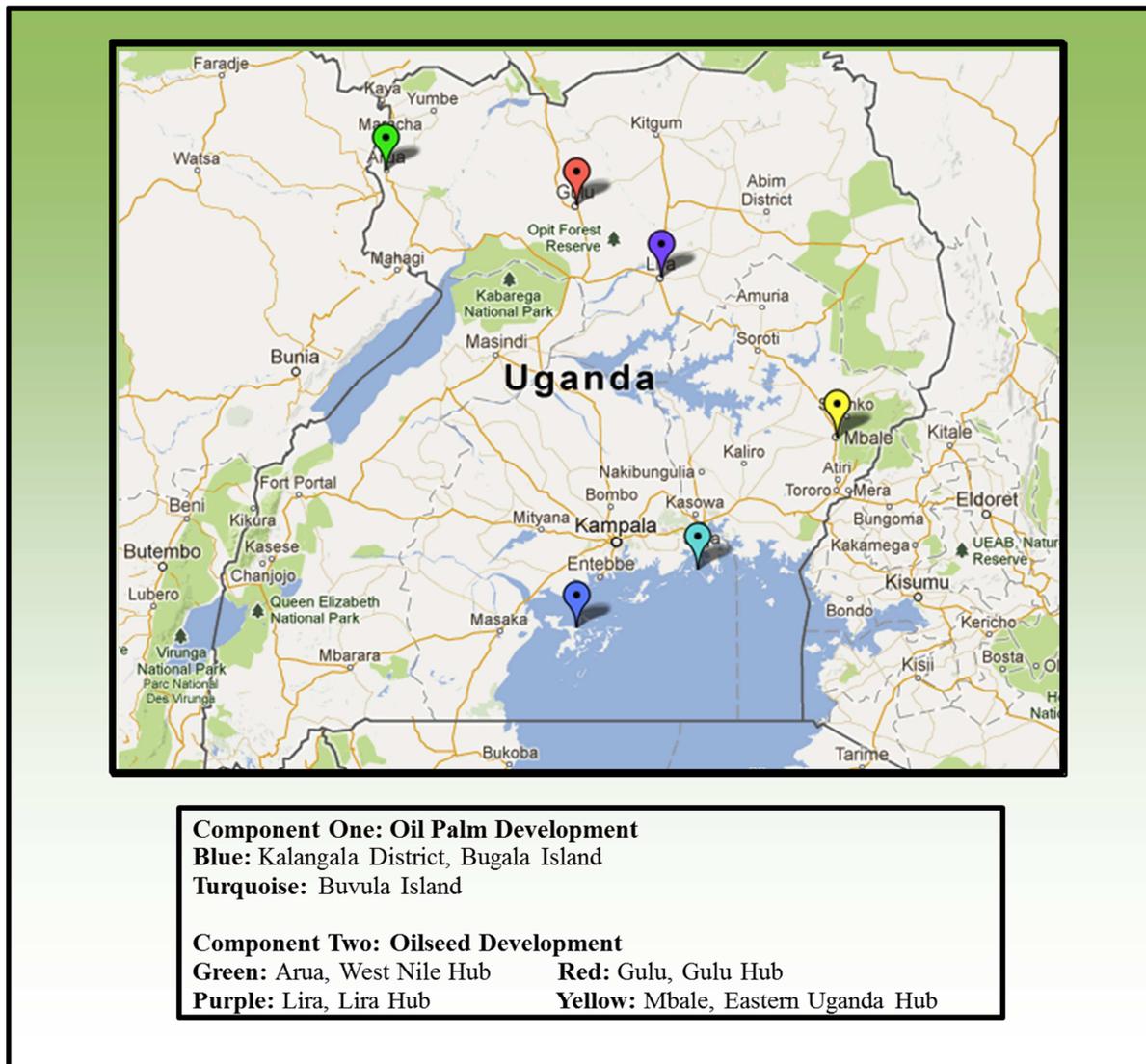
Total cost: US\$ 147.23 million
Approved IFAD loan: US\$ 52 million (35.5 per cent)
Approved IFAD grant: US\$ 1 million (0.7 per cent)
Duration: 2010-2018
Directly benefiting: 139,000 households

Source: IFAD project webpage

3.2.1. Project design and objectives

The aim of Vegetable Oil Development Project Phase 2 is to raise incomes for the rural poor in Uganda and ensure the supply of affordable vegetable oil products to domestic and export markets. To achieve this, the project objective is to increase the domestic production of vegetable oil and its by-products (IFAD 2010c, p.xii). The project is divided into three components: (i) oil palm development (81 per cent of total budget); (ii) oilseed development (13 per cent of total budget); and (iii) project management (6 per cent of total budget).

Map 1: Geographic location of Vegetable Oil Development Project, Phase 2 activities

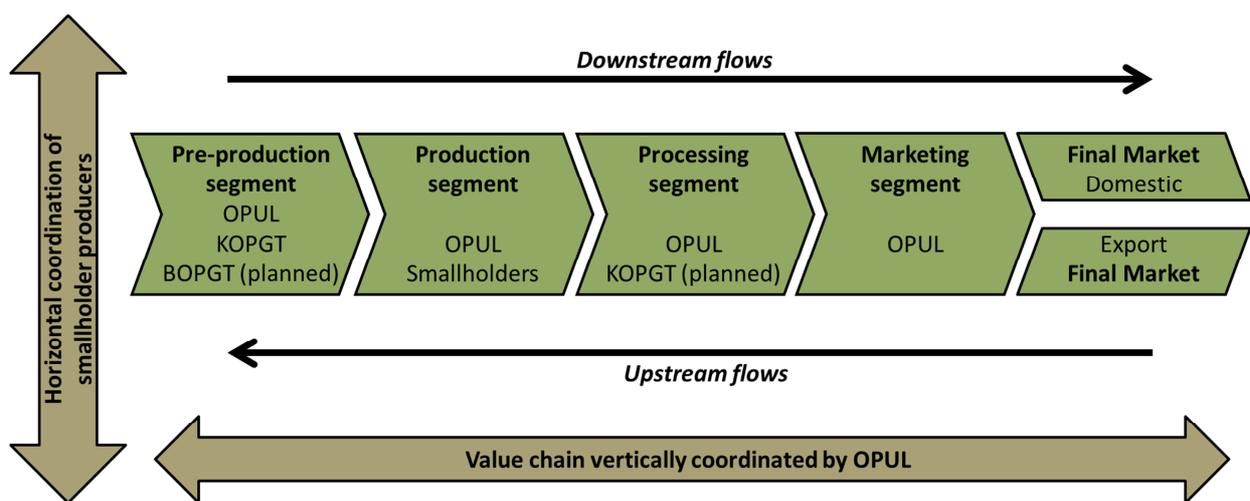


Source: Google Maps

Component one focuses on increasing oil palm production along Uganda’s Lake Victoria shoreline. At the core of the component’s design is the consolidation and expansion of a public-private partnership model developed previously on the Bugala Island, which brought together an integrated producer-buyer lead firm, established a producer association to support smallholder participation, and public sector oversight. In this second phase project, the component focuses first on increasing smallholder production of oil palm in the Kalangala district of Bugala Island from 2,000ha to 4,700ha. This will be supported with the strengthening of the pre-existing Kalangala Oil Palm Growers Trust (KOPGT) and the

development of a ferry service from the Bugala Island to the mainland. Second, the component aims to create a 10,000ha oil palm development on Buvuma Island, with 3,500ha cultivated by smallholder producers and 6,500ha directly operated by Oil Palm Uganda Limited (OPUL). This activity will be supported by the creation of Buvuma Oil Palm Growers Trust (BOPGT) and the creation of ferry services. The component expects to directly improve the incomes of 3,000 smallholder producers and indirectly benefit an unquantified number of wage labourers (IFAD 2010c, p.xii).

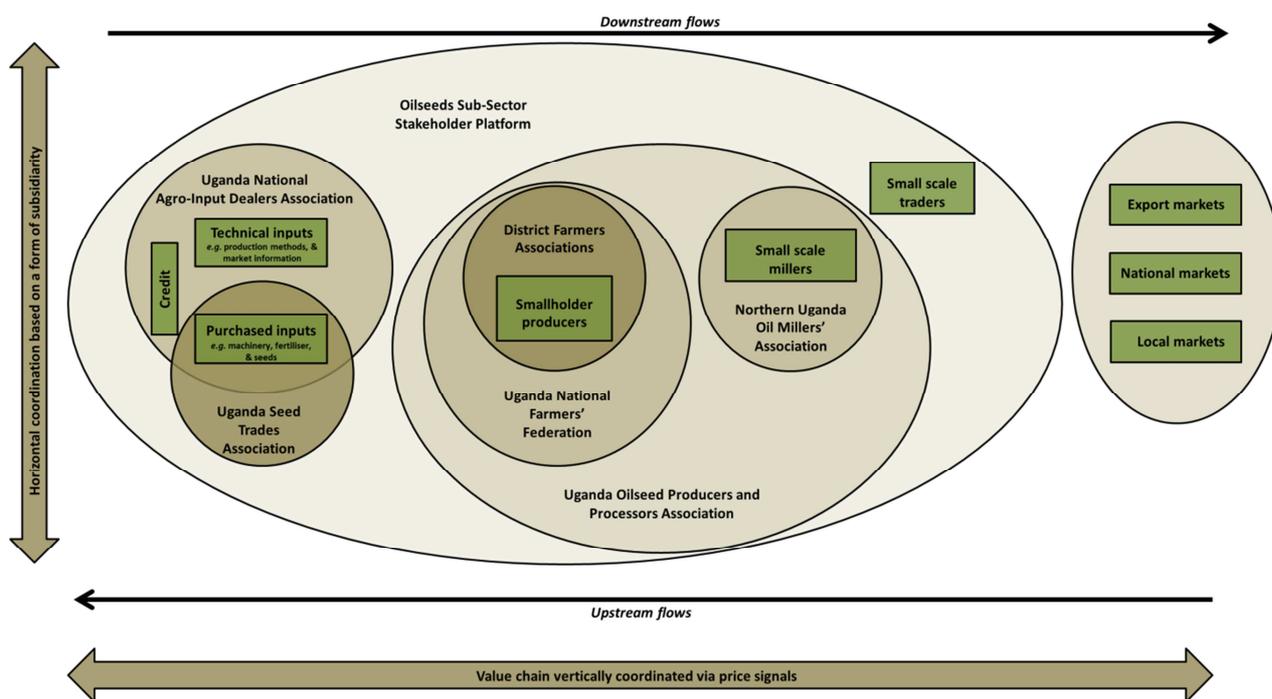
Diagram 2: Governance structure of oil palm component



Source: Authors' compilation based on IFAD, 2010c

Component two focuses on increasing Uganda's production of sunflower, soybean, sesame and groundnut oilseed crops. Production of oilseed crops will focus on four economic hubs: three in Northern Uganda and one in Eastern Uganda. The hubs are intended to serve domestic and export markets, with demand expected to exceed the estimated increase in supply. The component's activities will focus on increasing research and design into improved/hybrid seed varieties, provide support in contracting extension services for roughly 5,900 producer associations, provide financial support for an industry wide platform — the Oilseeds Sub-sector Platform (OUSSP) — and provide a risk mitigation fund for participating financial institutions. The component will target 136,000 poor rural producer, processor and trader households (IFAD 2010c, p.xii).

Diagram 3: Governance structure of oilseed component



Source: Authors' compilation based on IFAD, 2010c

3.2.2. Application of the typology

The following analysis explores how the typology can be applied to the analysis and design of oil palm and oilseed value chain development in Uganda to hypothesise the project's likelihood of achieving pro-poor outcomes.

Labour intensity

The labour intensity of the oil palm and oilseed crops are not explicitly referenced in either the phase 2 project design or phase 1 interim evaluation. However, the "high" priority given to increasing input intensity implies a reduction in the proportional intensity of labour to capital (IFAD 2010c, Appendix 4 p.9). This is motivated by the shortage of labour identified as a cause for the slow development in particular of oil palm production (IFAD 2010c, p.5; IFAD 2011b, p.16).

While the project documents do not explicitly reference the labour intensity of oil palm and oilseed crop production, both are considered highly labour intensive (World Bank, 2013; Vermeulen and Goad, 2006; FAO, 2001). UNEP calculate that one oil palm worker is required for every 2.3ha (2011, p.5). Furthermore, the ban on the use of herbicides in the production of oilseed crops (IFAD 2010c, p.9) means that a level of labour intensity is maintained.

Overall, while little explicit attention is given to the labour intensity of oil palm and oilseed crop production, the issue of labour availability and naturally labour-intensive means of production ensure that both oil palm and oilseed production would be expected to positively contribute to pro-poor outcomes. Furthermore, this project supports the work of Ngeleza and colleagues (2011) who show that in certain contexts an emphasis on capital intensity (via input intensity) can facilitate pro-poor outcomes.

Specificity

The project documents make no explicit reference to asset specificity. However, the lack of asset ownership is considered a key factor contributing to poverty in Uganda (IFAD 2010c, p.5). Consequently, the project aims to improve asset ownership for 50 per cent of participating households (IFAD 2010c, Appendix 5 p.1). These improvements will be achieved through the contracting of the private sector, to provide inputs and extension services, facilitated by producers' associations (IFAD 2010c, p.23). This is considered a "high" priority for the project (IFAD 2010c, Appendix 4 p.6-7). While the project documents do not explicitly reference asset specificity, the high reliance on labour should enable producers to easily switch labour and other inputs to different crops (Vermeulen and Goad, 2006).

Similarly, the project documents do not explicitly consider commodity differentiation. The focus of the development of a range of vegetable oil products highlights the substitutability of these commodities. However, the negative effects of the commodity substitutability are partially mitigated by two factors. First, the project supports compliance with high

environmental standards for Ugandan oil palm production (IFAD 2010c, Appendix 5 p.1; IFAD 2011b, p.75). This may differentiate it from alternative oil palm production, which often involves extensive deforestation¹². Second, the project documents are confident that the excess demand for vegetable oil in domestic and export markets would more than absorb the additional vegetable oil production (IFAD 2010c, p.8). Given excess demand, consumers would not be expected to exercise their ability to substitute the different vegetable oil commodities and should ensure that this should not affect the value chain.

Overall, the asset and commodity specificity factors should have a negligible effect on achieving pro-poor outcomes given the high dependence on labour and the existence of excess demand.

Resilience

Environmental resilience is explicitly and extensively emphasised. Less fertile soils and variable rainfall are identified as a constraint for the development and sustainability of vegetable oil value chains (IFAD 2010c, Appendix 4 p.2; IFAD 2011b, p.xii). In particular, the project identifies financial institutions' lack of experience in managing commercial risk associated with the effect of variable rainfall on oilseed production as a primary barrier to the extension of credit (IFAD 2010c, p.xii). Similarly, the decline in soil fertility is identified as a cause of pressure on the availability of land, which is exacerbated by the reluctance of smallholder producers to use fertilisers (IFAD 2010c, p.38). Extensive environmental risk-mitigation measures are included in the project's design. For oil palm production, these include a 200 metre forest border along the lakeshore, a zero-burning zone, a ban on the use of herbicides and planting of cover crops to prevent soil erosion, minimum use of agro-chemicals, effluent tanks to treat waste from the palm oil mill, and waste materials removed from the palms (IFAD 2010c, p.9). The costs of monitoring compliance will be assumed largely by government agencies and an Impact Monitoring System, supported by self-conducted environmental compliance audits (IFAD 2010c, p.9).

¹² Since 2004, the Roundtable on Sustainable Palm Oil has certified environmentally responsible oil palm production, while the two largest oil palm producing economies - Malaysia and Indonesia - have established national certification schemes (European Union Delegation to Malaysia, 2012)

Economic resilience is implied extensively throughout the project documents. More specifically, it is considered to have substantially improved due to the reduction in civil strife, stabilisation of the macroeconomic environment, increased public fiscal prudence and market liberalisation (IFAD 2010c, p.3). The project emphasises the harvesting of fresh fruit bunches of oil palm. However, given their high perishability and ease of bruising, fresh fruit bunches of oil palm must be processed within 24 hours of harvesting (Vermeulen and Goad, 2006, p.8). This substantially reduces producers' market power. With respect to oilseed production, the continued isolation and fragmentation of poor rural households undermines the benefits resulting from the improved macroeconomic context. Furthermore, the dependence on local markets increases oilseed producers' exposure to price volatility (IFAD 2010c, p.3). To overcome these constraints, the project will support improved market linkages with support for infrastructure and intermediary value chain participants, and increase access to export markets (IFAD 2010c, Appendix 5, p.1). The emphasis on intermediaries should improve the economic resilience of value chain linkages, by facilitating aggregation (bulk marketing), quality assurance, financing, and risk sharing (IFAD 2010c, p.19).

Overall, the precautions taken to improve environmental resilience should facilitate pro-poor outcomes. However, given the significant risk to economic resilience associated with OPUL's market power, the vast extent of the oilseed value chain (100,000km² and 12 million people), and the assumption that world prices will remain stable (IFAD 2010c, Appendix 5), the net effect on the resilience of poor rural households' incomes may be negligible.

Perishability

The project documents make no explicit reference to the perishability of either oil palm or oilseed output. While consideration is given to the need to improve the quality of long-term storage facilities, this reflects concerns due to pest infestations rather than the need to prevent oil palm or oilseed commodities spoiling (IFAD 2010c, Appendix 4 p.3). Nevertheless, both oil palm and oilseed crops are highly perishable and liable to bruise

easily. Consequently, the high exposure to risk of producers reduces their market power, favouring large value chain participants who are better able to absorb losses.

Regarding oil palm, the project explicitly refers to the harvesting of oil palm as fresh fruit bunches. Fresh fruit bunches must be processed within 24 hours of harvesting to prevent enzymes from causing the fruit to deteriorate (Vermeulen and Goad, 2006). Oilseed varieties are similarly perishable prior to crushing and refining (i.e. processing). However, as they are not traded as fresh fruit bunches, they can be dried on a small-scale near the farm gate reducing the risk of post-harvest losses, but increasing dependence on processing actors (Schmidt, 1999).

Overall, the highly perishable nature of oil palm and oilseed crops mean that producers risk significant post-harvest losses.

Income smoothing

The volatility of prices is explicitly considered in the project documents. With respect to oil palm production, the high level of integration should produce income smoothing effects for producers. This is because the contractual arrangements include price guarantees, and the contractor should be sufficiently large to absorb short-term price shocks (IFAD 2010c, Appendix 4 p.12). Furthermore, the increased access to export markets is expected to reduce the volatility arising from local markets (IFAD 2010c, p.16). However, the project explicitly recognises that the latter is premised on the assumption that international prices will remain constant (IFAD 2010c, Appendix 5 p.1).

With respect to oilseed production, income smoothing effects are expected to result from improved market information flows facilitated by increased use of mobile phone devices and improved value chain linkages (IFAD 2010c, Appendix p.11). Second, the project proposes exploring contract price arrangements between millers and farmers to further

address the volatility of prices and improve market information services (IFAD 2010c, Appendix p.12).

Overall, the project places significantly greater emphasis on the income generating aspect of oil palm and oilseed value chain development, rather than their income smoothing effects. While there is cause for concern regarding the seasonality and volatility of income, these effects can be compensated for by sufficiently responsive producers' associations.

Governance of linkages

Both project components explicitly and extensively consider the governance of their respective value chain linkages. However, the value chain governance structures adopted by the two components are very different.

The oil palm development explicitly utilises a vertically integrated model (IFAD 2010c, p.8). Given labour shortages, high product substitutability, lack of product differentiation, and high perishability of oil palm the project has utilised a tightly integrated model based on a public-private partnership to link island based producers with final markets (IFAD 2010c, p.4). The oil palm value chain in Uganda is consequently dominated by a fully integrated buyer, Oil Palm Uganda Limited. OPUL is a public-private partnership, 90 per cent privately owned by Bidco Uganda Ltd (IFAD 2010c, Appendix 3 p.13). Eventually, OPUL expect to directly manage 26,500ha of an oil palm plantation, with smallholder producers cultivating 13,500ha (IFAD 2010c, p.17). To address this imbalance in market power, the project aims to strengthen coordination between producers through two producers' associations: Kalangala and Buvuma Oil Palm Growers Trusts (IFAD 2010c, p.15-6). The lack of alternative suppliers for OPUL and buyers for producers limits the ability for either side to defect, and creates a mutually dependent relationship (IFAD 2010c, p.18).

In contrast the oilseed component explicitly emphasises a spot market governance structure. The spot market governance structure is considered the most appropriate model

to overcome the transactions costs resulting from the fragmented and segregated structure of the oilseed value chain (IFAD 2010c, p.19). By establishing a highly dynamic governance structure responsive to price signals, intermediary actors are encouraged to establish competitive, commercial links with producers that enable oilseed products to find final markets (IFAD 2010c, p.19). In this value chain intervention many producers, processors and traders interact in the process of moving oilseed commodities from pre-production to final market through one of four regional hubs. However, the emphasis placed on this dynamic and competitive governance structure risks side-selling by producers (IFAD 2010c, Appendix 4 p.13). This undermines the trust in commercial relationships necessary for poor producers to access input and credit provisions. As such, the value chain stops somewhat short of a full spot market governance structure. While numerous producers, processors, traders, and others respond largely to price signals, representative associations of the different value chain segments participate in an industry wide forum that facilitates some level of coordination for the value chain (IFAD 2010c, p.19).

3.2.3. Project hypothesis

H₀: Vegetable Oil Development Project, Phase 2 will produce pro-poor outcomes

(see Table 4)

In summary, the *Vegetable Oil Development Project, Phase 2* would be expected to produce pro-poor outcomes. The main factors contributing to pro-poor outcomes include: (i) the high degree of labour intensity required for the production of both oil palm and oilseed crops; (ii) the excess demand in domestic and export markets for vegetable oil products and byproducts; (iii) support given to developing horizontal and vertical coordination for the support of complementary services, such as credit provision, input and technical assistance, and information flows; and (iv) greater integration of Ugandan oil palm and oilseed producers into export markets. These positive factors are likely to overcome the negative factors, which include: (i) the high degree of commodity substitutability for both oil palm and oilseed crops; (ii) high degree of perishability; (iii) environmental shocks, such as flooding and droughts; and (iv) the volatility of local market prices. However, the

monopsonistic market position of Oil Palm Uganda Limited is cause for concern. While the development of the Kalangala and Bugala Oil Palm Growers Trusts is expected to mitigate the excessive dependence of producers, this must be closely monitored to ensure that future developments do not lead to an abuse of market power.

3.3. Pro-Poor Value Chain Development Project in the Maputo and Limpopo Corridor (Mozambique)

Box 2: Pro-Poor Value Chain Development Project in the Maputo and Limpopo Corridor project figures

<p>Total cost: US\$ 44.9 million Approved IFAD loan: US\$ 16.3 million Approved IFAD grant: US\$ 1.5 million Duration: 2012-2019 Directly benefiting: 20,350 households</p>
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Source: IFAD project webpage

3.3.1. Project design and objectives

IFAD's *Pro-Poor Value Chain Development Project in the Maputo and Limpopo Corridor in Mozambique* is geared towards using commercial development to sustainably increase the incomes of the target group: the economically active rural poor, with a particular focus on women. The project is geographically situated in Mozambique's southern region, consisting of the provinces of Gaza, Inhambane, and Maputo. This region is considered to be highly vulnerable to drought, as well as to climate change. As a result, improving the target group's ability to adapt to climate change is also one of the project's key goals. To this end, the project's overall approach is considered to be a synthesis of its many underpinnings, including

- i. The value chain approach
- ii. A private sector-driven approach
- iii. Market linkages
- iv. Improved access to services
- v. Increased sustainability of farmers' organisations
- vi. Increased economic returns to farmers

According to its design report (IFAD, 2012c), the project is comprised of five key components, focused on developing horticulture, cassava and red meat value chains, as well as financial services, and institutional support and project management. These are briefly summarised below.

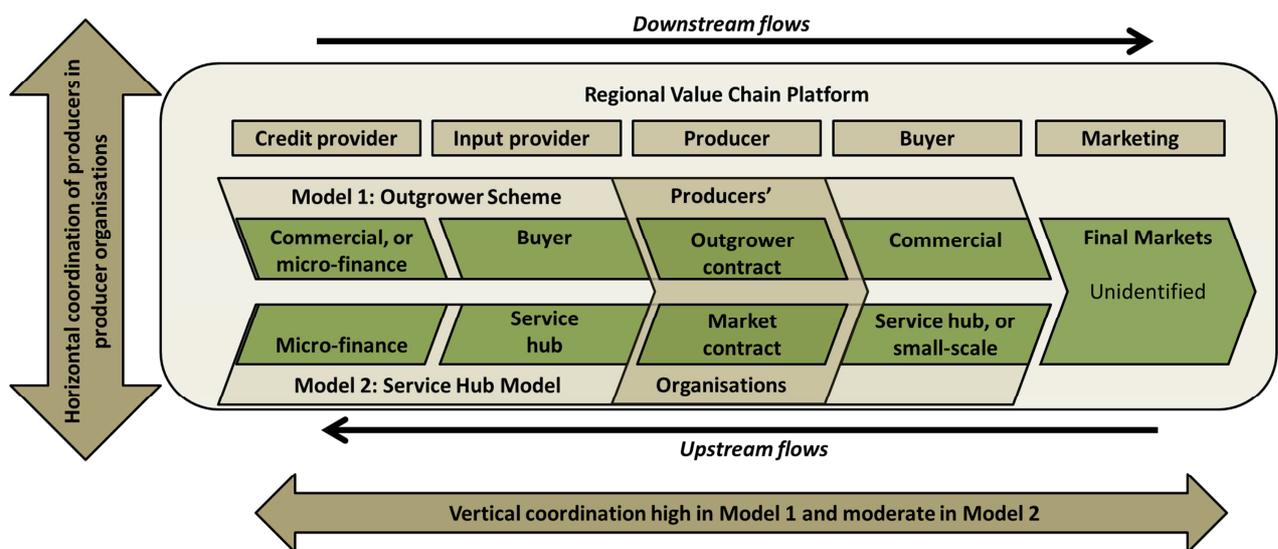
Map 2: Geographic location of Pro-poor Value Chain Development Project in Maputo and Limpopo Corridor activities



Source: Google maps

Component one is geared towards developing horticultural value chains in 9 of the 19 target districts. Its principal aim is to promote horticulture value chains in areas that possess underutilised irrigation infrastructure. This involves: (i) promoting year-round vegetable production through investments in irrigation, and increasing the target group's access to existing irrigation infrastructure (IFAD 2012c Annex 4, p. 4-8); (ii) developing linkages between smallholders and other value chain stakeholders through outgrower schemes, as well as horticulture service hubs co-owned by the target group (IFAD 2012c Annex 4, p. 9-17); and (iii) developing a favourable value chain environment through multi-stakeholder platforms (IFAD 2012c Annex 4, p. 17-19).

Diagram 4: Governance structure of horticulture component

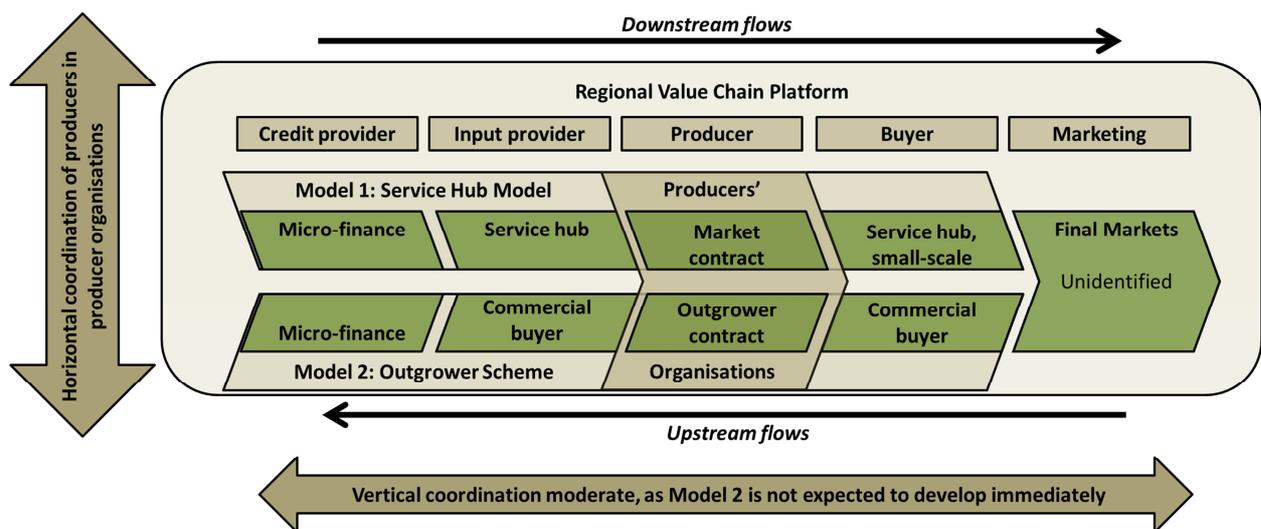


Source: Authors' compilation based on IFAD 2012c

Component two is geared towards developing cassava value chains in 6 of the project's 19 target districts. Its principal aim is to commercially reorientate the target group's currently subsistence-based production of cassava. This involves: (i) developing cassava farmers' ability to sustainably increase their productivity and improve the environmental resilience of their production, achieved in part through the development and proliferation of high-

yield, drought-resistant varieties (IFAD 2012c, p. 16); (ii) developing linkages between smallholder producers and other value chain actors, achieved in part through the establishment of cassava service hubs that possess processing capabilities (IFAD 2012c, p. 15); and (iii) developing a favourable value chain environment via multi-stakeholder platforms.

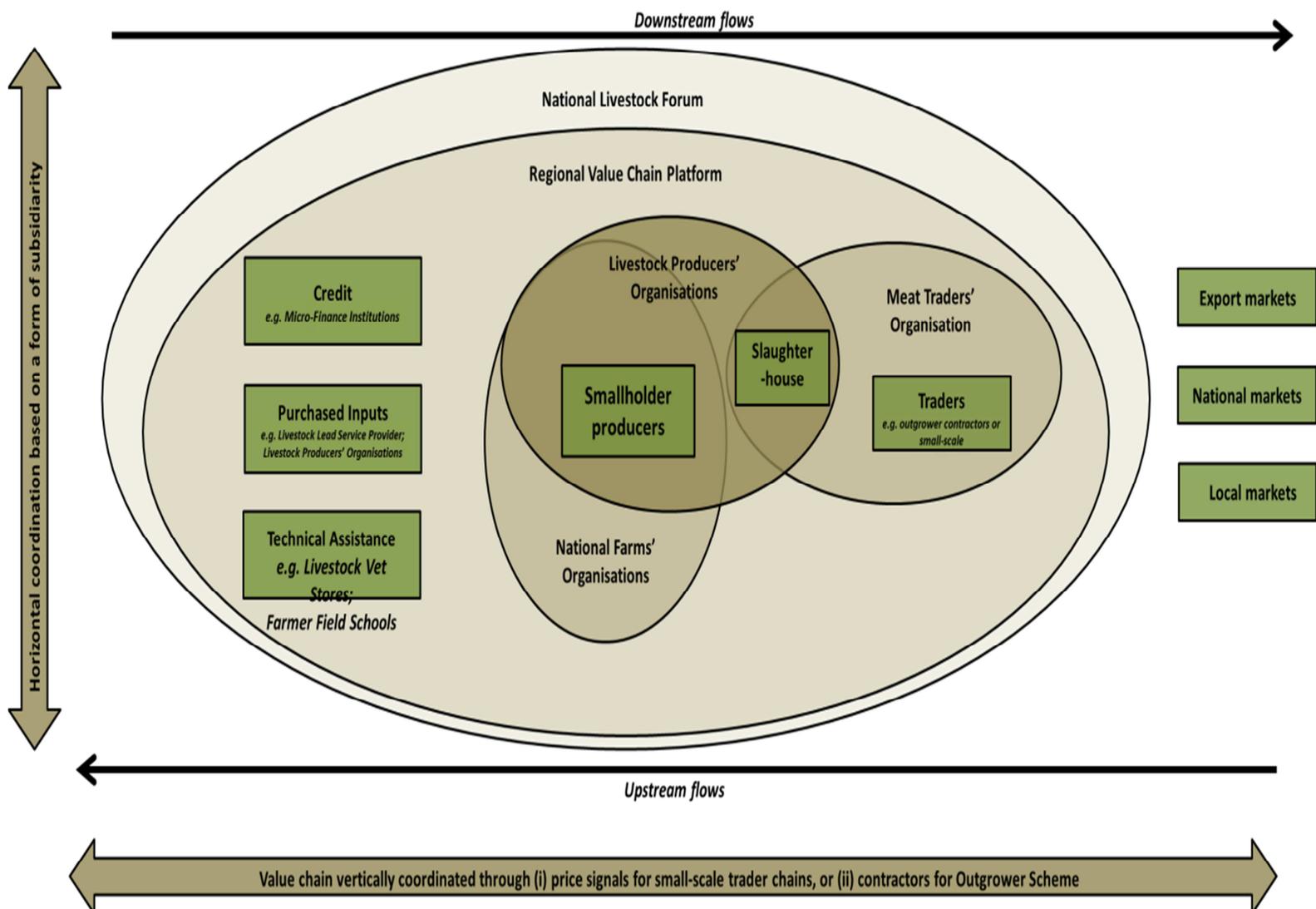
Diagram 5: Governance structure of cassava component



Source: Authors' compilation based on IFAD 2012c

Component three is geared towards developing red meat value chains in 7 of the project's 19 target districts. Its principal aim is to increase and commercialise the poor producers' livestock rearing activities (IFAD 2012c, p. 17). This involves: (i) fostering production practices that are both profitable and climate resilient, enabled by the formation of strong livestock producers' organisations (LPOs) (IFAD 2012c, p. 18); (ii) ensuring sustained market access for producers at fair prices, achieved in part through cattle fairs, the development of Meat Traders' Organisations, and the establishment of a slaughterhouse co-owned by the target group (IFAD 2012c, p. 19; Annex 4, p. 38); and (iii) developing a favourable value chain environment through multi-stakeholder platforms.

Diagram 6: Governance structure of red meat component



Source: Authors' compilation based on IFAD 2012c

The principal aim of component four is to ensure that all value chain participants — the target group, larger producers, and downstream actors such as processors and distributors — have access to adequate financial services at an appropriate cost (IFAD 2012c, p. 19-20). While larger and more commercialised value chain participants may already have access to the necessary financial services, this does not hold true for the project's target group, among others. As a result, satisfying this project component will involve extending resources to existing microfinance institutions (MFIs) through an investment fund, thereby

allowing these MFIs to provide the range of financial services required by the value chains' participants.

The principal aim of this component five is to improve the capacities of CEPAGRI — the government agency that will implement and manage the project. This will involve improving the agency's capacity to support value chain development through budgeting, administrative and monitoring practices (IFAD 2012c, p. 22). The project will also support the agency's ability to mainstream climate change adaptation strategies both into this project, as well as others (IFAD 2012c, p. 22-23).

3.3.2. Application to the Typology

In reading through the project design report (IFAD 2012c), it is possible to use the typology as the basis for analysing the project's pro-poor potential. Based on the project's components and special considerations, one can discern their effects on the 'determinants of pro-poor outcomes' highlighted in the typology.

Labour intensity

The project design report pays only marginal attention to the labour intensity of the chosen commodities. This focus is limited to the horticulture value chains, with the report highlighting their labour intensity as justification for the horticulture component's inclusion in the project (IFAD 2012c, p. 10). The World Bank calculates that horticulture requires 3-5 times more labour per hectare than traditional smallholder agriculture (2013, p.20) In contrast to horticulture, neither the labour intensity of cassava nor livestock — the two other commodities targeted by this project — are discussed in the project design report. However, both also involve relatively labour-intensive production techniques (FAO, 2008; World Bank, 2013). Given the large surplus of rural labour in Mozambique's southern provinces — those targeted by the project — this increases the likelihood that the project will achieve substantive pro-poor outcomes. Overall, the commodities around which this project is built are reasonably labour intensive.

Specificity

Neither commodity differentiation nor asset specificity are explicitly mentioned in the project design report. However, livestock and horticulture output can possess a reasonably high level of differentiation, as output quality can vary substantially. However, the project design does not specify the intended output quality, limiting the ability to estimate its effects on pro-poor outcomes.

Cassava is a relatively undifferentiated commodity. To compensate for this, the project intends to establish a service hub to process cassava in each of the five cassava districts (IFAD 2012c Annex 4, p. 24-25). These hubs will be co-owned by cassava producers, and possess an annual processing capacity of 7,000t per district (IFAD 2012c, p. 16).

Meanwhile, investments in producer assets are not such that they are expected to have a significant impact on the distribution of market power. In addition to the creation of cassava service hubs (p. 16), the project will invest in a slaughterhouse to service the red meat component — a facility that will be co-owned by LPOs (IFAD 2012c, p. 18). The development of irrigation infrastructure in the horticulture component (IFAD 2012c, p. 12-13) constitutes investment in relatively general assets. These constitute investments in general and transferable assets, and are therefore unlikely to affect the value chain's dependency dynamic.

Overall, the degree of asset specificity and commodity differentiation is sufficiently insignificant that its impact on the distribution of market power will likely prove negligible. Their cumulative effect on the expectation that the project will achieve pro-poor outcomes is therefore neutral.

Resilience

While increasing environmental resilience is explicitly emphasised in the project design report, and serves as one of the project's principal areas of focus, the development of economic resilience is largely ignored. First, the project's horticulture component seeks to increase environmental resilience through the promotion of irrigation infrastructure (IFAD 2012c, p. 12-13; Annex 4, p. 4) — infrastructure that will allow producers to protect their production in a region characterised by erratic rainfall, droughts and high temperatures (IFAD 2012c, p. 9). This is liable to have a particularly significant impact given that the majority of smallholder farmers in the region are currently dependent on rain-fed agriculture, with a mere 9% possessing access to irrigation (IFAD 2012c, p. 8).

The project's cassava component similarly seeks to reduce vulnerability to environmental shock. First and foremost, cassava is widely considered to be an inherently drought-resistant crop (FAD 2012c Annex 4, p. 21; FAO, 2008; Barrat et al., 2006), and so by its very selection should promote more environmentally resilient livelihoods for the target group. Building on this, the project commits to develop and proliferate high-yield, drought- and disease-resistant varieties of cassava (IFAD 2012c, p. 16). Finally, the project intends to use the farmers' organisations and service hubs to disseminate knowledge and distribute inputs needed to develop more resilient crop and soil management practices (IFAD 2012c, p. 16; Annex 4, p. 26-27).

Similar precautions are taken in the project's red meat component. The project design report highlights the fact that livestock has historically been a key component of livelihood strategies in arid and semi-arid regions (IFAD 2012c, p. 10), including those in which the project is set. This resilience is complemented by the use of LPOs to develop climate-resilient production techniques, and disseminate best practices regarding dry season feeding techniques (IFAD 2012c, p. 18; Annex 4, p. 35-36).

Overall, the project places a very strong emphasis on promoting resilience to environmental shocks, in particular those caused by climate change — an important

development given the target region's high vulnerability to climate change (IFAD 2012c, p. 8-9). This significantly increases the expectation that the project will achieve substantive pro-poor outcomes.

Perishability

While the project design report pays little explicit attention to the perishability of the commodities themselves, each of the three value chain components contains a mechanism to improve the output's preservability. First, the outgrower schemes promoted in all three of the project's value chain components offer a guaranteed final market for commodities (IFAD 2012c Annex 4, p. 10). The risks involved in producing perishable commodities are thereby reduced, as there is less likelihood that output will rot before reaching market. However, the prevalence of such schemes is predicted to be minimal in the cassava component (IFAD 2012c, p. 15) — an issue given that cassava is the most perishable of the commodities supported by this project (IFAD 2012c Annex 4, p. 21).

Service hubs will play an important role in mitigating the risks associated with the perishability of cassava. The processing capacity of these service hubs — hubs that will be co-owned by the producers themselves (IFAD 2012c, p. 16) — will serve as a destination for producers' output (IFAD 2012c Annex 4, p. 24). While the project offers few details as to the proportion of the target group's cassava production to be absorbed through the service hubs, there are plans to expand cassava processing capacity by a further 6,000t per annum in each of the five cassava target districts if needed (IFAD 2012c Annex 4, p. 25).

Similar service hubs will also be developed in the horticulture component, having a similarly positive impact on the risks associated with perishability. While not possessing processing capacity, these horticulture service hubs will offer both cold and dry storage (IFAD 2012c, p. 13; Annex 4, p. 11). Although not explicitly linked to the issue of perishability in the project design report, the effect is nevertheless worthy of note.

Overall, moderate precautions are taken to reduce the risks associated with producing perishable crops. This marginally increases the expectation that the project will achieve pro-poor outcomes.

Income smoothing

This project contains a variety of income-smoothing mechanisms. While many of these mechanisms are not explicitly categorised as such, the project does seek to provide producers with a year-round income (IFAD 2012c, p. 12). To this end, the report also mentions the benefits to be derived from serving out-of-season markets (IFAD 2012c, p. 14).

In the horticulture component, the project seeks to facilitate year-round vegetable production. This will be achieved in part through the rehabilitation of 2,100ha of existing irrigation schemes (IFAD 2012c, p. 13; Annex 4, p. 4-5). By protecting producers from seasonal fluctuations in rainfall and growing conditions, both output and income are smoothed. Investments in low-cost greenhouses (IFAD 2012c Annex 4, p. 16), efficient water management and adequate storage facilities (IFAD 2012c Annex 4, p. 3) are also projected to facilitate year-round production (IFAD 2012c, p. 13). Adding to this is the fact that horticulture was itself selected for value chain development due in part to the fact that it provides quick and steady returns to producers (IFAD 2012c, p. 10; Annex 4, p. 2). As discussed in Section 2.2.6, the time-frame in which asset-poor producers accrue income is of the utmost importance.

Across all three of the project's value chain components, outgrower schemes will also smoothen producer income (IFAD 2012c, p. 13, 16-17). By regularising transactions via contract, a perpetual assurance of income is institutionalised. Complementing this is the project's commitment to invest in transport infrastructure for all three value chain components, ensuring that producers are able to physically access markets throughout the year (IFAD 2012c, p. 14; 16).

Finally, the project will set up fodder banks¹³ in the red meat component, designed to compensate for the scarcity of forage during the dry season (IFAD 2012c, p. 18; Annex 4, p. 36). By protecting producer incomes from natural variability, fodder banks should promote pro-poor outcomes. These fodder banks will be managed and operated by the LPOs (IFAD 2012c, p. 18).

Overall, significant income smoothing is achieved on behalf of the target group — an important consideration given their relative vulnerability (IFAD 2012c, p. 8-9). This significantly increases the expectation that the project will achieve substantive pro-poor outcomes.

Governance of linkages

The governance of linkages is given ample consideration in the project design report. Although not explicitly categorised as a form of ‘horizontal coordination’, the promotion of producers’ organisations is a recurring theme throughout all three value chain project components. In particular, there is a concerted effort to strengthen existing producers’ organisations (IFAD 2012c Annex 4, p. 17, 27, 34). This is based on the understanding that horizontal coordination allows producers to secure inputs at a lower cost, reduces transaction costs, and helps ensure producers receive a fair price for their output (IFAD 2012c, p. 7). To this end, the project seeks to: (i) strengthen weak farmers’ organisations (FOs); (ii) develop FOs’ capacities to act as shareholders in service hubs; (iii) promote inclusivity in FOs by ensuring greater participation of women; and (iv) promote water users’ associations to improve the use and management of irrigation schemes (IFAD 2012c, p. 7; p. 16-17).

Second, the project will also promote vertical integration by producers into the processing segments of the cassava and livestock value chains. In the cassava component, this will take the form of service hubs with processing capacity (IFAD 2012c, p. 15-16; Annex 4, p. 24), while in the red meat component this will take the form of a slaughterhouse co-owned by

¹³ Storage facilities for livestock feed.

LPOs (p. 19). In both cases, producers will retain a significant share of the ownership of these facilities, accruing a larger share of the value added by their respective value chains.

Finally, the project promotes outgrower schemes in all three components. This is particularly so in the horticulture (p. 13; Annex 4, p. 10) and red meat components (IFAD 2012c, p. 19; Annex 4, p. 39), as there is thought to be less private sector interest among buyers to procure cassava through contract schemes (IFAD 2012c, p. 15). Such contract-based farming promotes a degree of vertical coordination through which producers gain better access to inputs, as well as guaranteed and regularised access to markets.

Overall, the project places a strong emphasis on fostering horizontal coordination, as well as selective, yet beneficial vertical coordination. This increases the expectation that the project will achieve substantive pro-poor outcomes.

3.3.3. Project hypothesis

*H₀: Value Chain Development Project in the Maputo and Limpopo Corridor
will produce pro-poor outcomes (see Table 4)*

In summary, the Value Chain Development Project in the Maputo and Limpopo Corridor would be expected to achieve pro-poor outcomes. First, the commodities around which the three value chain components are built possess a relatively high degree of labour intensity. Second, numerous precautions are taken to protect poor producers from the negative effects of climate change, which are otherwise projected to be quite severe in the target region. Third, the risks associated with commodity perishability are somewhat reduced through the development of market linkages, outgrower schemes and storage capacity. Fifth, a variety of mechanisms are put in place to help smooth producer incomes. Finally,

horizontal coordination is promoted extensively through the development and strengthening of farmers' organisations, and livestock producers' organisations. Collectively, these traits are expected to offer significant benefits for poor producers by increasing their market power, farm gate prices, and access to markets, among others.

Table 4: Pro-poor potential of value chain projects, scored on a scale of 1-5 (1= Detrimental to poor; 5= Beneficial for poor)

Determinants of Pro-Poor Outcomes	Vegetable Oil Development Project – Phase 2 (Uganda)	Pro-poor Value Chain Development Project in the Maputo and Limpopo Corridor (Mozambique)
Labour intensity	<p>Score: 5</p> <p>Reasoning: Production of oilseed and oil palm is highly labour intensive. Increasing proportion of capital to labour to overcome labour shortages.</p>	<p>Score: 4</p> <p>Reasoning: Production of horticulture, cassava and livestock are all reasonably labour intensive.</p>
Specificity	<p>Score: 3</p> <p>Reasoning: Minimal investment in specific producer assets. Oil palm and oilseed as relatively substitutable, but excess demand may neutralise negative effects. Some differentiation may be achieved through environmental standards.</p>	<p>Score: 2</p> <p>Reasoning: Minimal investment in specific producer assets. Livestock and horticulture are only marginally differentiated, while cassava is highly substitutable.</p>
Resilience	<p>Score: 3</p> <p>Reasoning: Moderate environmental resilience given multiple precautions to reduce soil</p>	<p>Score: 4</p> <p>Reasoning: Greater environmental resilience due to: irrigation in horticulture component; cassava and</p>

	erosion and infertility in oil palm component. Greater economic vulnerability of producers due to high perishability.	livestock as inherently resistant to drought; dissemination of climate change-resilient techniques. Neutral impact on economic resilience.
Perishability	<p>Score: 2</p> <p>Reasoning: Oil palm and oilseed crops are highly perishable commodities. Few precautions taken to mitigate risks of producing perishable crops.</p>	<p>Score: 3</p> <p>Reasoning: Outgrower schemes provide guaranteed markets. Service hubs with processing capacity are developed. Cassava is highly perishable once harvested.</p>
Income smoothing	<p>Score: 3</p> <p>Reasoning: Vertical integration in oil palm component. Improved information flows and possible contract price arrangements in oilseed component.</p>	<p>Score: 4</p> <p>Reasoning: Year-round vegetable production in horticulture component. Outgrower schemes provide regularised income. Fodder banks in red meat component.</p>
Governance of linkages	<p>Score: 4</p> <p>Reasoning: Vertical integration and an emphasis on horizontal coordination in the oil palm component. The development of an industry-wide forum to coordinate activities in the oilseed component. Risks of excess market power in the hands of OPUL.</p>	<p>Score: 5</p> <p>Reasoning: Establishing and strengthening producers' organisations in all value chain components. Vertical integration by producers in cassava and red meat components. Strong vertical coordination through outgrower schemes.</p>

Source: Authors' compilation based on IFAD, 2010c and IFAD, 2012c

Conclusions and recommendations for future research

This paper was motivated by a desire to examine scepticism regarding the potential for value chain projects to achieve pro-poor outcomes. The starting assumption of the paper was that, over time, value chains tend to scale. This was thought to increase the likelihood that poor producers would either be marginalised within chains, or excluded from them altogether. However, the available evidence indicates that under certain conditions, pro-poor outcomes can be achieved. As a result, this paper's focus has been the identification of the principal determinants of pro-poor outcomes in value chains.

The primary contribution of this paper has been the development of a testable analytical typology, which may guide future value chain interventions towards achieving pro-poor outcomes. The typology has been developed through a three-stage process. First, a review of relevant donor documents and academic literature was conducted. This review focused on the available evidence of the effects of commodity-specific factors and governance structures on the terms of value chain participation. Second, key lessons were drawn from this review to identify factors affecting the terms by which poor producers are likely to participate in value chains. These factors were

- Labour intensity
- Asset specificity
- Commodity differentiation
- Long-run price stability
- Perishability
- Time-horizon and frequency of benefits
- Vertical coordination
- Lead firm
- Horizontal coordination
- Vertical integration by producers' associations

Third, a typology synthesised these factors into six key determinants of pro-poor outcomes. These determinants were operationalised along a series of dynamic spectrums. These were

- i. Labour intensity
- ii. Specificity
- iii. Resilience
- iv. Perishability
- v. Income smoothing
- vi. Governance of linkages

Next, this typology was applied to two on-going IFAD value chain projects. This was done for two principal reasons. First, it illustrated the extent to which these two projects mentioned and addressed the six key determinants that comprise the typology. Second, these two cases exemplified how the typology can be applied to value chain project designs to hypothesise the likelihood of projects achieving pro-poor outcomes. The intention is that future projects will utilise similar hypotheses to test the typology's explanatory power (for a proposed methodology, see Appendix).

In conclusion, the contribution of this paper has been the development of a typology which may help guide future value chain project designs. This typology is not an exhaustive guide, but rather a step in a continually evolving process. In contrast to previous value chain guides (e.g. Kula et al., 2006), which have attempted to provide prescriptive practitioner guidelines for the development of value chains projects, this paper has focused exclusively on improving the analysis and design stages. The aim of this process is to increase the likelihood of value chain projects' efficient achievement of substantive pro-poor outcomes. The continuing nature of this process highlights the need for more rigorous monitoring and evaluations of value chain projects. The hope is that the academic and development communities will build on this work, and incorporate its insights in future value chain development.

Appendix - Testing the typology

The following is an ideal methodology to test the effect of the participation in a value chain project (key explanatory variable) on pro-poor outcomes (i.e. explained variable), controlling for the following - largely binary - variables: (i) geographic (e.g. sub-Saharan Africa, Latin America, Eastern Europe, Southeast Asia); (ii) demographic (e.g. years of education, age, gender, race, health); and (iii) socio-political (e.g. democratic system, political partisanship of government).

An ideal test will be proceed as follows. First, a selection of sample of projects is needed. These projects should cover geographic, demographic, commodity and governance variances. Second, the typology should be applied to each project to establish a series of null hypotheses regarding the likelihood of achieving pro-poor outcomes. Third, household-level panel data should be collected on poor producers participating in each of the value chain projects (i.e. the treatment group), and for an identical control group, before and after project implementation (i.e. the treatment). Fourth, a difference-in-differences model should be used to identify the change in the effect on poor producers of participating in a value chain project, taking into account the effect on the non-participating control group. The null hypotheses are either rejected, or fail to be rejected on the basis of the result.

However, there are practical constraints on this ideal methodology. These include: (i) difficulty in identifying a suitable control group which will be isolated from the spill-over effects from the value chain project; (ii) selection bias is likely to arise due to entrepreneurial poor producers self-selecting to participate in value chain projects; and (iii) attritional effects are likely to bias results, as those poor producers most likely to benefit from participation in a value chain project will survive the treatment.

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