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**DOI**

[10.1016/j.jrurstud.2021.02.018](https://doi.org/10.1016/j.jrurstud.2021.02.018)

**Publication date**

2021

**Document Version**

Final published version

**Published in**

Journal of Rural Studies

**License**

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**Citation for published version (APA):**

Olofsson, M., Ros-Tonen, M., Gupta, J., de Steenhuijsen Piters, B., & Van Leynseele, Y. (2021). Rethinking the divide: Exploring the interdependence between global and nested local markets. *Journal of Rural Studies*, 83, 60-70. <https://doi.org/10.1016/j.jrurstud.2021.02.018>

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## Rethinking the divide: Exploring the interdependence between global and nested local markets

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### ARTICLE INFO

#### Keywords:

Agricultural commodification  
Agricultural diversification  
Nested markets  
Smallholders  
Tree crops  
South Africa

### ABSTRACT

The debate on smallholder commodification trajectories tends to be polarised between mainstream approaches that advocate tighter integration of smallholders into global value chains, and alternative approaches that favour localised markets on the grounds that these provide greater autonomy over production and marketing, and allow a greater share of value to be realised for producers and the wider community. This debate obscures the interrelations and possible synergies between them; a critique taken up in this paper. Using a case study on agricultural diversification in the former homeland of Venda, South Africa, we explore the usefulness of the nested markets concept to make sense of smallholders' patterning of markets by combining tree crops for export with seasonal vegetables for local markets. Exploring the drivers of diversification, we show how farmers' patterning of markets depends on their profiles and corresponding trajectory of accumulation. Local markets are articulated systems that function as hybrid spaces of interaction that enable farmers without any alternative off-farm income to gain and sustain access to global commodity markets. This challenges the framing of nested markets as an act of resistance as well as the dichotomy between local versus global markets as mutually exclusive. Instead, we argue that these markets can be interconnected and mutually supportive and are opportunistically used as such by petty commodity producers to sustain their export-oriented production system. If these relations are better understood, they stand to enable agrarian policy, which currently favours high-value tree crops, to be more inclusive of young and less well-resourced farmers.

### 1. Introduction

Agricultural commodification amongst smallholders has been mainstreamed by both international development agencies and governments, in concert with the private sector, to address rural poverty and achieve development objectives across the global South (NPC, 2013b; World Bank, 2007). However, the form this takes in terms of the nature of production, types of markets supplied and sustainability, and its relation to food security and nutrition, remains contested in agricultural and food policy debates (Holt-Giménez and Shattuck, 2011). Neoliberal and reformist approaches generally advocated by the FAO and World Bank argue that agricultural commodification should take place via intensification and diversification into high-value crops that can be transacted via 'modern' supply chains. This, they argue, can accelerate economic growth and development and increase household income and purchasing power, which in turn may enhance access to

food and nutrition security (FAO, 2018; World Bank, 2007). This largely assumes that rural poverty results from smallholders being marginalised or left out of the globalisation process and that market approaches and trade liberalisation can facilitate smallholders' access to these 'modern' supply chains, link them to niche export markets and that public-private-partnership play a key role in facilitating this.

However, incorporation into these global value chains can result in adverse effects, including perpetuating environmental degradation and poverty (Bolwig et al., 2010; Hickey and du Toit, 2013), increased financial risk, losses and debt dependency (McMichael, 2013). Furthermore, production for distant markets may divert scarce resources away from the production of food crops that could feed and nourish local people, and result in loss of autonomy over production and agricultural diversity, affecting the nutritional value of food produced (Holt-Giménez and Altieri, 2013; Rosset, 2008). As a counter to the mainstream narratives, Food Sovereignty and Food Justice movements and

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<https://doi.org/10.1016/j.jrurstud.2021.02.018>

Received 7 August 2020; Received in revised form 8 February 2021; Accepted 25 February 2021

Available online 6 March 2021

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critical agrarian scholars (e.g. van der Ploeg, 2014) focus on building resilient and more autonomous local production and consumption systems, building on agroecological practices (Holt-Giménez and Altieri, 2013; Rosset, 2008).

These alternative forms of production, distribution and consumption and their rationalisation have gained prominence recently and been conceptualised as ‘alternative food networks’ (Sonnino and Marsden, 2006), ‘territorial agri-food paradigms’, ‘territorial markets’ (Kay, 2016; Wiskerke, 2009), and ‘nested markets’ (Van der Ploeg, 2015; Van der Ploeg, Jingzhong and Schneider, 2012) amongst others. They are ‘alternatives’ to the global agro-food paradigm that may be more attractive to smallholders as they enable greater levels of autonomy over production, pricing and marketing, while bringing local and regional social and economic benefits via opportunities for processing, distribution and trade, thus enabling and promoting greater access to food and contributing to local economic development. While these alternatives have varying emphasis on different aspects, they are all grounded to varying degrees in notions of ‘quality’, ‘transparency’, ‘autonomy’ and ‘locality’ amongst others and, importantly, they are all constructed largely in opposition to global industrialised markets, signalling a shift away from these markets towards re-localised and embedded food and agricultural regimes that are constructed as a counter to the global ‘corporate food regime’ (McMichael, 2005). Such analyses foreground the ‘peasant logic’ as capital’s ‘other’ and frame peasants’ intrinsic goals in terms minimising dependency on the commodity relations emanating from ‘food empires’ or ‘corporate food regimes’ (van der Ploeg 2008).

This polarised debate on smallholder commodification trajectories and the related production systems and markets tends to pit commodity production for global markets against food crops for local or regional markets as an either/or scenario that involves an inevitable trade-off. Such a polarisation obscures the interactions between these different food systems and the production relations within which they are embedded. Some have argued that the coexistence and continuous connections between alternative food networks and nested markets and broader agri-food markets strengthen these alternatives, making them more robust strategies for rural development (Schneider et al., 2016). In contrast, others see these relations as a competitive ‘battleground’ that undermines re-localization processes that are embedded in alternative food systems (Sonnino and Marsden, 2006).

This paper further explores these smallholder commodification trajectories further based on a case study of smallholder production in Venda, South Africa; a context of multiple markets where high-value export-oriented tree-crop commodification is in certain circumstances combined with the commercial production of vegetable crops destined for local markets. Analysing how these markets are combined contributes to a better understanding of the nature of their interconnectedness and more generally how these market circuits are integrated differently by different categories of farmers. The paper seeks to go beyond the polemic of global versus alternative re-localised stances by focusing on the production relations that accompany the process of agricultural commodification and, in so doing, contributes to broader debates on smallholder agricultural commoditization trajectories, and in particular, the nature and role of nested markets. In this regard, we use the concepts of ‘specificity’, ‘connectedness’ and ‘rootedness’ from the literature on nested markets as analytical tools, to explore their usefulness in light of the peasant bias and normative emphasis on re-peasantisation processes.

We ask: how does the commodification of subtropical tree crops for global markets interact with the production of vegetable crops for local markets amongst smallholders in Venda? We answer this question by exploring three interrelated sub questions (i) what is driving agricultural diversification into vegetable crops within orchards, (ii) what is the nature of this diversification and (iii) what features of nested markets characterise the market relations?

The paper elaborates on the concept of nested markets as an analytical tool (Section 2). The dynamics in the South African food system and the wider agrarian structure are then discussed to

contextualise the role and position of smallholder and subsistence farmers in food production and provisioning (Section 3). This is followed by an overview of the study site, materials and methods (Section 3); analysis of the findings (Section 4) using the nested markets approach as a heuristic tool; discussion of the future trajectories of these changing land-use patterns and social relations (Section 5) and conclusions (Section 6).

## 2. Nested markets as an analytical lens

The nested markets concept has gained prominence in recent years amongst critical agrarian scholars for distinctive qualities that set them apart from more general agricultural and food markets. As a useful analytical tool Van der Ploeg et al. (2012, p. 142) use Bernstein’s (2010) classical agrarian political economy question – who owns what, who does what, who gets what and what is done with the surplus – to illustrate the main features that differentiate conventional global markets from nested markets, Table 1 summarises these differences in terms of scale, ownership, nature of goods traded, farmers’ role, relation to consumers, value distribution and appropriation of surplus (see Table 1).

Source: Compiled based on van der Ploeg et al. (2012) and van der Ploeg (2015).

Evidence of the workings of nested markets in the global South is demonstrated by the local fresh produce markets that have sprung up amongst beneficiaries of Zimbabwe’s fast track land reform programme (Matondi and Chikulo, 2015), fish markets in and around Lake Victoria (Medar et al., 2015), local farmer markets in Brazil (Schneider et al., 2016), and local fresh produce trade in South Africa (Manyelo et al., 2015).

Nested markets are generally conceptualised in a normative, political sense, as part of a broader reaction to the hegemony of global market forces and indicative of a growing re-peasantisation movement. The very construction of nested markets is built on the notion that they emerge through the agency of those involved as part of a broader struggle for greater autonomy over production (Van der Ploeg et al., 2012). This is evident in the link made between nested markets and Polani’s ‘double movement’ thesis (Hebinck et al., 2015, p. 5). This thesis states that the emergence of dominant and unfettered market forces, which ultimately undermine the social and ecological basis of life, will inevitably stimulate a push back or counter movement from societal forces to reign in and realign the market in accordance with social and ecological priorities. Nested markets are considered to be a part of such a broader counter movement, essentially seen to represent:

“the social struggles, strategies and attempts of local actors (e.g. farmers, traders, consumers, collectives) to actively respond to ‘failures’

**Table 1**  
Comparison between conventional agricultural and food markets and nested markets.

Feature	Conventional markets	Nested markets
Scale	Global	Local, but embedded in wider territorial markets
Ownership	Controlled by large industrial and/or commercial empires	Shorter chains, (co-)owned by farmers
Goods	Uniform, dislocated from place of origin	Diverse, adapted to consumers’ needs
Farmers’ role	Suppliers of raw material for the food industry	Producers and on-farm processors
Relation to consumers	Distant and anonymous	Direct selling
Value distribution	Largest share for the food empires	Higher share for the farmer
Appropriation of surplus	Food empires consolidate their power through merges and acquisitions and thus appropriate surplus	Farmers can use income to increase resilience; strengthen agricultural diversification; and improve their livelihoods.

of the global markets they are confronted with. While these struggles and strategies are extremely diverse, they share a common feature: they increasingly hinge on the creation or development of nested markets” (Hebinck et al., 2015, p. 5).

This view considers nested markets as part of a broader counter movement that takes into account the multiple and varied forms of agency of social actors, thus representing an alternative view to the idea that smallholders are destined to be squeezed out and that market relations lead to compulsive inclusion/path dependency. Market forces are usually skewed against smallholders (a lack of storage, generally weak organisation such as cooperatives), but nested markets show that these typical market access constraints can be changed and reversed, which is a key aspect of ‘re-peasantisation’ (Hebinck, 2018).

The highly diverse contexts and constructions of nested markets means that they may look very different from one place to the next. However, three overarching features – *specificity*, *connectedness* and *rootedness* – characterise the distinctive socio-material nature of these markets (Van der Ploeg et al., 2012). *Specificity* refers to the distinctiveness of both the product and the production process. These are closely linked to unique quality characteristics that derive from the socio-cultural and geographical context and the specific resource base and skills. This could be traditional crops varieties that have adapted to the specific agro-ecological conditions and are cultivated according to specific traditions that give them a specific regional identity that is not easily replicable on an industrial scale. *Connectedness* emphasises the socio-material infrastructure or network between producers, traders and consumers, which is typically non-hierarchical, with power diffused across the different actors. Such networks are also seen to be more remunerative to the actors involved as transport and transactions costs are minimised by the short chains and because of the unique qualities such as freshness, which generate higher value per unit. The relations between actors are considered relatively stable and established, yet at the same time flexible, enabling them to be considerably resilient. This both enables freshness and other quality characteristics. Lastly, *rootedness* emphasises that the network is more than just a social network, and based on shared quality definitions, trust and local embeddedness. Collectively these features make up the distinctiveness of nested markets which are considered common-pool resources (Van der Ploeg, 2015, pp. 34–36). Unlike the ‘material’ common-pool resources discussed by Ostrom (2002) the distinctiveness of nested markets lies largely in the combination of both material and social elements, with particular emphasis placed on the polycentric and horizontal organisation that exists between the multiple actors involved (spanning production, distribution and marketing). Furthermore, these social networks are self-organised and self-governed and operate according to norms that are mutually beneficial. As such they are considered resilient to being co-opted and subsumed by global market actors (Van der Ploeg, 2015). Each of these features differentiates nested markets from global markets and reinforces the dichotomy between them.

Starting from this common conceptualisation, nested markets can be differentiated on the one hand by foregrounds the agency of actors involved in the construction of specific markets from a normative political perspective while, on the other, the foregrounding of the socio-material nature of these market interactions along the three key dimensions discussed above. Our approach to nested markets distinguishes between the socio-material manifestation of nested markets as an analytical approach, which is explored through the three overarching features presented above, and nested markets as a normative political project that sets out to counter global hegemony in the food system. In doing this, we consider how the conceptualisation of peasant autonomy and nested markets construction as distancing from conventional markets has been critiqued for not paying attention to the variable degrees of commoditization amongst (non-peasant) commercially-oriented smallholders or petty commodity producers and the way their market integration does not necessarily result in loss of autonomy (Castellanos-Navarrete and Jansen, 2018; Manley and Van Leynseele, 2019; Vicol

et al., 2018). The peasant bias and incommensurability approach to conventional and alternative markets found in nested market thinking, although very useful for conceptualising farmers’ agentive patterning of markets toward self-determination, also throws up analytical blind spots pertaining to processes such as ‘accumulation from below’ and smallholders’ orientation to global markets (see also Burnett and Murphy, 2014; Jansen, 2015). Besides the degrees of farmer commoditization, we thus promote an analysis of market interconnectedness that enables us to empirically explore ‘degrees of nestedness’.

As such we deviate from the common use of nested markets as “the outcome of social struggles” (Hebinck et al., 2015, p. 3), “spaces of contestation” (González, 2017) and “competing agri-food geographies” (Sonnino and Marsden, 2006, p. 196) and rather frame them as hybrid spaces of interaction where local markets are embedded in global capitalist markets (Schneider et al., 2016). As such we explore the extent to which the features of nested markets are present in the production and marketing systems of tree-crop farmers, while interrogating their motivation and rationale to engage in different markets. As such, we aim to unravel to what extent this multiple engagement presents a political project. We also apply this nested market thinking in a dynamic way, exploring the temporal and spatial configurations of production. We foreground a farmer-centred rather than a market-centred approach to the analysis of farmers’ agency in agricultural diversification strategies and hence do not focus on the institutional aspects of these market arrangements. We make this choice because these aspects are particularly relevant in the context of tree crops considering that they are capital intensive, slow to mature and, once reaching maturity and having closed canopies, prevent cultivation between the trees. Thus, the typical focus on degrees of commodification, often defined according to ‘tight’ or ‘loose’ ties to markets (see Cousins, 2015) seems to be too static. By foregrounding the materiality of tree crops in relation to nested markets, and thereby centring temporality, we seek to generate more dynamic insights into how interests and opportunities converge and diverge in relation to nested markets.

### 3. The context of nested markets in Venda

This study focuses on the commodification of high-value subtropical tree-crops by smallholders in the former ‘homeland’ of Venda in the Vhembe District of Limpopo Province. The tree-crop commodity focus is relevant in South Africa as these commodities are amongst those highlighted in the National Development Plan (NPC, 2013) as having the most potential for employment generation and are therefore strongly promoted and supported amongst smallholders by both state and private sector actors. The National Development Plan ambitiously aims to create 1 million jobs in agriculture by 2030 by expanding irrigated agriculture and increasing the productivity of ‘underused’ land in communal areas and land reform projects. It thereby aims to address the high rates of unemployment and poverty in rural areas. Most of these ‘new’ jobs are anticipated to be created in high-value export-oriented commodities such as macadamia and avocado, for which there is a rapidly growing global market. These commodities have been prioritised as strategic areas for support and development with a focus on ‘historically excluded farmers’<sup>1</sup> (LDARD, 2015).

We situate the current context of smallholder production and markets within the broader historical context of colonial and apartheid policies that systematically dispossessed the indigenous peasantry of political rights, land and livelihoods. As a result, the black majority was confined to ten overcrowded, ethnically divided territories or ‘homelands’ where basic subsistence agriculture was practised at a level insufficient to ensure social reproduction. These homelands became labour reserves for the fast-growing white industrial economy and cheap labour for the expanding white commercial farming sector. Through

<sup>1</sup> This refers to black farmers.



most of the 20th century during which these widespread processes of dispossession were taking place, the state played a key role in shaping the direction of agricultural change. As such the establishment and consolidation of the ‘white’ commercial farming sector into the current modern and globally competitive agri-business sector was not an inevitable or ‘natural’ process. Rather it can be attributed to the targeted state interventions, which included the injection of public funds through direct and indirect subsidies, the implementation of market and tariff protections, and favourable policies that secured land and water rights and access to cheap labour (Jeeves and Crush, 1990; Keegan, 1990). From the 1980s onwards the apartheid government reduced agricultural support as it had become financially and politically unviable, and the process of deregulation and trade liberalisation was continued by the ANC government after 1994 (Genis, 2015). These processes effectively enabled the concentration and consolidation of farming and agribusiness since 1994, which despite the state’s effort at transformation have done little to change the inherited structure, which remains defined by racialised inequality (Bernstein, 2013). Such capitalist developments in agriculture since 1994 have effectively consolidated the barriers to the growth and viability of the production of small-scale farmers (Bernstein, 2013).

The white commercial farming sector owns and controls much of the arable land in the area, many of whom are successfully accumulating capital. This is happening through one or a combination of strategies which include expanding the scale and scope of production; expanding into upstream or downstream enterprises such as processing/exporting; increasing economic efficiency or engaging in political action to reduce uncertainty; or establish preferential access to and control over key resources, markets or policy processes (Genis, 2015). In stark contrast, the black farming sector in Vhembe is mostly comprised of subsistence-oriented farmers who cultivate two or three varieties of fruit trees along with vegetables and maize in homestead gardens. Farming generally is a means to contribute to the household consumption needs, with some selling small amounts of surplus in the local community (De Hon, 2015; Stats SA, 2018). To a far smaller degree, yet very important for creating livelihoods and provisioning of local food, production of fresh produce for markets takes place on around 1-ha plots in irrigation schemes. These products are mostly sold into the informal market via different types of street traders (Manyelo et al., 2015), but also to local supermarkets (Louw et al., 2008). A third category of land-based livelihoods involves the cultivation of subtropical fruits and nuts. These crops have been grown by smallholders on plots around 5 ha since the early 1960s, initially primarily for household consumption and sale into local markets. However, since 2000, there has been a rapid growth in the replanting of old orchards and the establishment of new ones by smallholders, and the introduction of macadamia and new varieties of avocado ((Olofsson, 2021). These new production dynamics are stimulated by the opening up of new market opportunities for smallholders through global value chains via large white-owned commercial companies. Smallholders are actively responding to these opportunities, often struggling to gain and maintain access to the production systems and markets for these high-value commodities.

We situate our investigation of smallholder commercialisation within a contemporary rural setting where capitalist relations structure social and economic life. As such agricultural markets play a key role and provide an analytical departure point for exploring exchange relations in which smallholder tree-crops farmers engage. We approach markets from a sociological perspective, as arenas in which exchange takes place, embedded within broader social structures and relations, and the cultural context within which they operate (Fligstein and Dauter, 2007). These social relations pattern the movement of goods and services across time and space, and as such these patterns adjust to and are forged by specific socio-material infrastructure (Van der Ploeg, 2015). By focusing on the socio-material infrastructure as is emphasised by the nested markets concept, we illustrate the nature and relationship between the different types of markets in which smallholder tree-crop

farmers engage. We hone in on the relationship between vegetable crop production and tree crops, because of its implications for less well capitalised farmers to gain and maintain access to these high-value commodities. If progress is to be made towards generating agricultural livelihoods, as current rural development policy aims for, this relationship warrants closer scrutiny.

#### 4. Research methods and data collection

The first author conducted fieldwork during multiple field trips between 2015 and 2019, comprising a total of 12 months, and held follow-up telephonic interviews in 2020. Data collection followed a sequential mixed method design (Creswell and Clark, 2011), whereby an initial survey among tree-crop farmers (N = 80) was followed up by in-depth interviews (N = 34). The survey was conducted in 2015/6 with the objective to include as diverse a sample as possible. We initially identified farmers through the extension officers’ contacts and private sector supplier lists, which included farmers from across the Makhado and Thulamela municipalities. Further respondents were found through snowball sampling using farmers’ personal networks and simply by identifying orchards while traversing the countryside. The survey explored the nature and degree of socio-economic differentiation and focused on production-related dynamics, asking questions about tree and non-tree crops, their related land dynamics (reported in (Olofsson, 2020) and market relations (this paper).

Based on the analysis of the survey data, 34 respondents for in-depth interviews were identified, representative of the diversity of tree-crop farmers in the area. These were interviewed during 2017/8, elaborating on the rationale behind crop choice, diversification strategies and marketing dynamics. In 2020, follow-up interviews (n = 5) were conducted telephonically with informants from the previous round of interviews, to catch up with recent developments in cash-crop production and marketing.

Throughout the fieldwork, data collection was undertaken from an ethnographic orientation, which enabled a rich contextualization of the practices and processes. The first author participated in various trainings and meetings through the local extension officers and private sector actors; participated in the daily activities on the farms visited such as weeding and harvesting; and spent time ‘hanging out’ in the busy market places and road-side spots from where informal traders operate.

Survey data was analysed using descriptive statistics and a two-step clustering technique in SPSS (see Olofsson, 2020 for details). Interview data was transcribed and coded using emergent codes based on the key features of nested markets. Fieldwork journals provided detailed descriptions of observations regarding production dynamics and interactions between farmers, local community members purchasing directly from them, and traders.

#### 5. Unpacking farmer diversity and the relations between tree crops, vegetable crops and their multiple markets

##### 5.1. The multiple drivers of diversification from tree crops to vegetable crops

Smallholder orchards are important sites for more than just the cultivation of tree crops. During the summer months it is common to see the alleyways between trees and patches around the orchards cultivated with maize primarily for household consumption, and seasonal vegetables cultivated between the young trees or alongside the orchards for sale into local markets. It is to the production and market dynamics of these vegetable crops that we now turn. Across our sample as many as 38 farmers (47.5%) were cultivating vegetable crops in addition to tree crops (see Table 4).

In the analysis we use the typology of tree-crop farmers developed by Olofsson (2020b), which is based on the nature of socio-economic differentiation amongst farmers using a class analytic perspective

(Bernstein, 2010; Cousins, 2013). This approach is informed by an agrarian political economy perspective which has a largely structural focus compared to nested markets which tends to foreground farmers agency. However, by combining the two approaches in a sequential manner we are able to situate the dynamics and function of nested markets within a broader context of farmer diversity. Four broad categories were identified, with the key differentiating factor being the nature of the primary livelihood source. Broadly, these categories represent two agrarian classes. The first and majority demonstrates characteristics of petty commodity producers, most of whom were reliant on state pensions (41% of the total sample), and another group living mainly off farming (29%). The second group consists of small-scale capitalists, with one group having access to off-farm salaried work (21% of all farmers) and another group of fulltime farmers (9%). Small-scale capitalists rely primarily on hired labour and have sufficient earnings from non-farm wages or agricultural profits to reinvest and engage in trajectories of accumulation. In contrast, petty commodity producers rely on their own or family labour and their scope for accumulation is limited. It is for this latter group that vegetable production and the engagement with nested markets is of importance as an avenue for ‘accumulation from below’ (Cousins, 2013). As with any typology, this categorisation presents a static picture, which obscures the dynamic nature of these livelihood trajectories. We use it more as a heuristic to enable key differences between farmers to be identified and to provide some context from which to understand farmers’ engagement in nested markets and the implication thereof for accumulation.

Across all farmer categories, we found farmers producing vegetable crops for sale into local markets (see Table 2). The highest percentage (64.7%) occurred amongst agricultural petty commodity producers; farmers with very little or no additional off-farm income to invest in their orchard. This was followed by welfare-dependent petty commodity producers (45.5%), whose pension grant also offered limited potential to cross-subsidise their orchards. To a lesser degree, yet still important, salaried and agricultural small-scale producers were also farming vegetable crops in their orchards (39.1% and 42.9% respectively). So, far from the monocrop orchards of the large commercial farmers, most smallholder orchards are sites of diverse production systems, which integrate different tree varieties and vegetable crops.

<sup>b</sup>Weighted average refers to the number of producers from each farmer category multiplied by the number of tree or vegetable crops produced by each producer;  $\frac{n}{N} * (\text{number of veg. crops})$ .

While vegetable crops are an important part of the production system for many tree-crop farmers, this says little about the relative importance of these crops in relation to tree-crop production. The gross annual income from tree and vegetable crops shows that vegetable crops play the most important role for agricultural petty commodity producers who have little or no additional income, but are also relatively important for welfare-dependent petty commodity producers and salaried small-scale capitalists (see Table 3).

R = South African Rand; R1 equalled 0.06338 USD at the time of data collection.

Several drivers explain the diversification into vegetable crops. These are a combination of the materiality of the tree crop (capital intensive, years before they can be harvested); cash flow; orchard management; and farmer profile characteristics.

First, diversification needs to be understood in relation to the highly capital-intensive nature of establishing tree-crop orchards and maintaining them for four to six years before the first harvest. This makes tree-crop farming contingent on access to some alternative source of income until the trees mature, and as such diversification is an economic strategy that enables entry into the tree-crop sector:

“To get started you must focus on cash crops<sup>2</sup> .... you can get more money from farming than from working ... since 2010 I was able to plant 3 ha avocado, 1 ha macadamia, and 0.5 ha litchis” (interview PCP, Lwamondo, 4 July 2018).

“The money I earn from cash crops I reinvest in my farm ... I have purchased irrigation pipes for the macadamia and plan to drill a bore-hole” (interview PCP, Vondo, May 13, 2016).

Second, vegetable crops are maintained even after trees reach maturity in order to complement the annual income from tree crops with a more regular income stream for seasonal crops. From then on the different crops may cross-subsidise each other:

“I grow cash crops because I can collect money in three months’ time. Macadamia only gives income once a year. Cash crops are a fast way to get cash ... they pick me up in the time I’m waiting for my macadamia harvest ... I can use it to get money for mac and then when I harvest mac I can use money to buy seeds for maize and save some money. Its like a hand in glove, one hand helps the other” (interview, PCP, Radali, 20 May 2020).

“Cash crops combine well with tree crops as they simultaneously irrigate the trees. Tree-crop income I use to buy irrigation equipment for the cash crops” (interview, PCP, Mapate, May 24, 2020).

Complementing tree-crop income with that of vegetables is characteristic of the welfare-dependent petty commodity producers, whose retirement presents a transition to becoming a fulltime farmer for those who have slowly been investing in their orchards during their working years. In this case diversification happens as a result of retirement freeing up their own labour, thereby enabling the pursuit of labour-intensive crops such as vegetable crops.

Third, there are agro-ecological benefits and pragmatic considerations that motivate this type of diversification:

“As I water my cash crops everyday it also gives me a chance to irrigate my tree crops ... If it was not for my cash crops I would not be working in the orchards everyday and my tree crops would not be in a very good condition” (interview, PCP, Mapate, May 24, 2020).

Intercropping between the trees clearly has benefits for both the tree and orchard management. However, intercropping is only a temporary arrangement until the trees mature, as farmers use areas that are unsuitable for trees or the land that they cannot afford to cultivate with trees:

“I’m doing veg only for intercropping before the mac gets too big. I will always use the lower portion for veg as its too cold for mac” (interview PCP, Mukula, April 22, 2016).

“I think by 2021 half of the orchard will be full of trees as they are growing very big, so I will not be able to grow cash crops ... but I have already started clearing another 12-ha piece of land and have already started planting cabbages and onions there (interview PCP, Tshixwadza, May 31, 2020).

This third driver is characteristic of many petty commodity producers. Growing vegetable crops is often a result of the lack of alternative off-farm employment. In such cases, multiple family members, usually across generations, combine their labour, thus enabling the more labour-intensive activities involved in growing seasonal vegetables, hence diversification. In these cases, the orchards are primarily the responsibility of the male household head, while spouses and/or children are engaged in the farming of vegetable crops.

Fourth, there are specific farmer characteristics that drive the process. The first largely characterises the agricultural petty commodity producers and is driven by inheritance dynamics. Most tree-crop farmers

<sup>2</sup> The term ‘cash crop’ is used colloquially to refer to vegetable crops produced for local markets.

**Table 2**  
Crop combinations within orchards (N = 80 for tree crops N = 38 for veg producers).

Smallholder profile <sup>a</sup>	No. of tree-crops (weighted average) <sup>b</sup>	Primary tree crop (%)			No. of veg crops (weighted average)	Vegetable crops (%)
		Macadamia	Avo-cado	Mango		
Welfare-dependent PCPs (n = 33)	2.1	63.6	60.6	30.3	3.6	45.5
Agricultural PCPs (n = 23)	1.5	41.2	47.1	29.4	4	64.7
Salaried SSCs (n = 17)	1.7	69.6	34.8	43.5	4.6	39.1
Agricultural SSCs (n = 7)	2.1	71.4	42.9	28.6	5	42.9

<sup>a</sup> See Olofsson, 2020b for more details.

PCPs = petty commodity producers; SSCs = small-scale capitalists.

**Table 3**  
Relative economic importance of tree crops and vegetable crops.

Profile	Gross annual income from tree-crops	Gross annual income from vegetable crops	Relative importance of different crops
Welfare-dependent PCPs (n = 33)	IQR <sup>a</sup> R11.737 Median R3.840 Min, max R0, R52.840	IQR R620 Median R0 Min, max R0, R55.000	Tree crops important, with secondary importance given to cash crops
Agricultural PCPs (n = 23)	IQR R11.250 Median R0 Min, max R0, R195.000	IQR R67.800 Median R4.650 Min, max R0, R350.000	Cash crops important
Salaried SSCs (n = 17)	IQR R11.000 Median R4.000 Min, max R0, R56.000	IQR R670 Median R0 Min, max R0, R130.000	Tree crops important, with secondary importance given to cash crops
Agricultural SSCs (n = 7)	IQR R769.000 Median R420.500 Min, max R0, R812.000	IQR R90.000 Median R0 Min, max R0, R100.000	Tree crops important

<sup>a</sup> IQR = the interquartile range or middle 50% between the second and third quartile. This measure was preferred above the average for better indicating the spread where the standard deviation is high.

**Table 4**  
Cash-crops and related market channel.

	Farmers cultivating the crop % (n = 38) <sup>a</sup>	Primary market channel						Total
		local community %	local trader %	local retailer %	processor/exporter %	national market %	missing/other %	
Green leafy veg	52.5	23.8	47.6	23.8			4.8	100
Cabbage	42.1	18.8	18.8	25	6.3	6.3	25	100
Green maize	36.8	20	40		20		20	100
Tomatoes	28.9	18.2	54.5	9.1		9.1	9.1	100
Butternut	26.3	20	50	10		10	10	100
Onions	21.1	50		12.5			37.5	100
Beetroot	18.4	14.3	28.6	42.9			14.3	100
Chillies	15.8	16.7			16.7	66.7		100
Honey	7.9		33.3		33.3		33.3	100

<sup>a</sup> From the total sample of n = 80, n = 38 reported growing vegetable cash crops in addition to tree crops.

(62.6%) are nearing or have already reached retirement age.<sup>3</sup> This implies that farm succession is an important means through which younger people acquire orchards. Often the child without formal tertiary qualification or opportunities for formal employment ends up taking over the farm, which means there is often little or no alternative income stream available. The inherited orchards are often old and under-productive due to the cultivars and years of neglect. In the absence of alternative livelihood sources, diversification into vegetable crops enables access to income to support the regeneration of these orchards:

<sup>3</sup> We categorised farmers into the following groups 18–35 = 8.8%; 36–55 = 28.7%; 56–65 = 23.8%; 66+ = 38.8%.

“I’m only doing this so I can get money to do macadamia. I maintain the macadamia, buy chemicals and fertilisers and buy electricity with the money from the cash crops” (interview PCP. Mukula, April 22, 2016).

Having outlined these drivers of diversification, we stress that this process critically hinges on access to water. We found different systems through which farmers were gaining access to water, the most common being via gravity-fed irrigation systems, and alternatively via pumping water from a local dam or stream. It must be noted that in many cases people were unable to access water via either of these methods, in which case they were unable to engage in the production of food crops.

### 5.2. Vegetable crop combinations and nested markets

Vegetable crop production within orchards varies. Usually crop choice evolves through a combination of market opportunities (market demand, farmers’ market networks) and experimentation with what fits the specific agro-ecological conditions best. Green leafy vegetables – a collective term to denote Chinese cabbage, nightshade and pumpkin (see 5.2.3) – were the most commonly grown vegetables on orchard land, followed by white cabbage, green maize, tomato, butternut, onion and chillies (Table 4). Besides these, many farmers were experimenting with new crops (e.g. green beans, okra, peas, beetroot, garlic, marrows,

strawberries, and rose geranium) in response to new market opportunities. Several crops are combined simultaneously and rotated seasonally, resulting in farmers engaging with multiple market channels at any one time.

The most common market channel is via local traders, also commonly referred to as ‘bakkie’ traders. These traders operate informal businesses, their key asset being their vehicle (‘bakkie’), which enables them to collect and transport the produce to the point of sale. They would purchase produce directly from the farmers at their orchards and sell from busy roadside intersections, at specific locations in the local town centres or at pension pay-out points. Farmers usually reported long-standing relationships with the traders they supplied. They communicate ahead about production plans and the harvesting and

collecting the product is negotiated according to mutual availability. Prices are negotiated with traders according to prevailing conditions in the informal market, but usually there are relatively standard prices, varying slightly depending on quality, seasonality and location of the orchard. Traders would oversee the selection to ensure quality, as well as packing of produce. Without any cold storage facilities, traders usually only purchase the quantities they could sell immediately, going directly to their selling points and thus ensuring freshness to consumers. These types of relations between producers and traders can be considered as ‘active market interaction’ (Ncube, 2017) because producers have existing relations with the traders and engage with them prior to planting and usually manage to sell most of their produce this way.

The traditional green leafy vegetable and pumpkin leaves are the most commonly cultivated crop, sold primary to local traders (47.6%). These crops are particularly popular because they are an important ingredient in traditional diets and a key part of the region’s cultural culinary identity. They are also well adapted to the agro-ecological conditions and relatively resilient. In addition, they are not grown on a large scale by commercial farmers and not readily available in supermarkets, so the informal market for these crops is relatively lucrative, enabling large margins to be made compared to selling to retail chains or to national markets. This is similar to what others have found (Chikazunga and Paradza, 2013). These local trader networks importantly also create economic opportunities for local people, in a rural context of high unemployment. As one local resident from one of the villages commented: “Orchards are good for us as we buy the mustard<sup>4</sup> and sell it in Thohoyandou” (focus group, Duthuni, August 1, 2017). Sales made directly to local community members were the second most common market channel, providing fresh produce to local people close to home. Such sales usually hinged on social ties and community networks. Information was often relayed via word of mouth and local villagers would come directly to the orchards. This saved transport costs to the local town and such direct sales were valued by producers for being more lucrative. However, direct sale to community members was always complemented by other channels.

“There are not so many people doing this farming around here and once you start doing this people find out and they come. So many people come here and they buy directly. Some cars and some wheelbarrows, they come here. We are helping the community ... Tomato, mutshaina, and muxe<sup>5</sup> are the best, you don’t look for market, they come. I did cabbages last year, but this year my brother is doing cabbage, so I’m not doing it because if we both do it there will be too much. My family are the ones growing food here for the village” (interview PCP, Dopeni, May 13, 2016).

Suppling local retailers was less common, but in those cases was usually done via the local Spar,<sup>6</sup> which is one of the few supermarket chains which enables direct procurement from smallholders (Louw et al., 2008). Few farmers were able to meet the requirements in terms of quality and quantity, and considering the narrow product range in which these retailers are interested and the additional transport cost involved in delivery, very few farmers engaged this channel. Farmers also reported that the prices from supermarkets were much lower than what they could get from local traders, so even if the supermarkets were able to purchase large volumes, they are a less promising marketing avenue. Similarly, for the national fresh produce markets, economies of scale and the associated high cost of transportation were cited as the main barriers to accessing these markets. Chillies were the most common product supplied to this market, largely because they are relatively

cheap and easy to transport.

These market channels described above stand in stark contrast to the market for macadamia and avocado which are destined for international markets. In this case farmers have little choice of marketing options as there are two main processing plants for macadamia and one for avocado in the area. In these cases, farmers have no room to manoeuvre in terms of price, as these are fixed and payment terms are often staggered across several tranches which can extend over a period of one year. These payment terms are often what are more contested by smallholders than the amount itself. Increasingly these processing/export companies are setting minimum quality and quantity standards which pose additional challenges to smallholders. The lack of transparency regarding the quality assessment of the produce delivered by smallholders and the related pricing structures are standard issues raised by smallholders. Alongside which are the transport costs due to the distance to the delivery points.

With this overview of the different types of markets in which farmers engaged simultaneously, we now turn to the three key dimensions of nested markets – specificity, connectedness and rootedness – drawing out the most prominent features from our case study that demonstrate the extent to which they resemble nested markets.

### 5.2.1. Specificity

A key element of specificity is the historical context, which has resulted in the dual agrarian structure which is defined by class and race relations. Access to the market for high-value tree crops is controlled by key actors in the large-scale commercial sector. These actors own and control the downstream activities such as processing and exporting where much of the value is accumulated, with smallholder having little bargaining power or control over the terms of engagement. The product quality delivered by smallholders is considered inferior due to a lack of pesticide use. In contrast, the vegetables produced within orchards and sold through local nested markets are particularly valued because of their quality. The freshness of produce purchased directly from the farm and the quality in terms of size and maturity of the crops as they are harvested on demand are recognised by consumers and this translates into a premium price and durable reputation. While farmers often mentioned these features as a reason why consumers favoured direct purchases, the economic incentives (saving on transport costs) rather than product quality tended to be the main driver behind these transactions:

“It is because we do not have supermarkets closer to our area as all the big supermarkets are in town, so people would rather spend nothing or paying less for transport costs to buy the products from the traders rather than paying more to go and buy it in town ... They pay less price and get more product than when buying in the supermarket ... The product when it is in the supermarket is very very less in terms of quantity, maybe half of the same size than is sold by traders” (interview PCP, Muthale, June 1, 2020).

“I used to send my chillies to Levubu for transportation to the Johannesburg fresh produce market, but now I find it better to sell to the Indian traders in town because they come to my farm so there are no transport costs and the price is higher” (interview PCP, Ridali, September 6, 2016).

### 5.2.2. Connectedness

The notion of connectedness was particularly evident in terms of the short and decentralised circuits; the horizontal patterning of these chains; and the flexibility that they accommodated. The relation between producers and consumers or traders was often a personal one, which had been established over time mostly between people from the same culturally defined community. Traders were usually longstanding customers and new traders were introduced through word of mouth. Communication about which crops to expect in the coming season and their estimated harvest time was discussed long in advance and enabled traders to plan accordingly. Likewise, traders often shared market

<sup>4</sup> Mustard is the colloquial term for Chinese cabbage (*Brassica rapa*).

<sup>5</sup> Muxe is Tshivenda for nightshade (*S. nigrum* complex) and mutshaina is Tshivenda for non-heading Chinese cabbage (*Bassica rapa* L. subsp. *chinensis*).

<sup>6</sup> The acronym SPAR originates from Dutch and was originally DESPAR: *Door Eendrachtig Samenwerken Profiteren Allen Regelmatig* – All benefit from joint cooperation (<https://spar-international.com/aboutus/history/>).



information with producers so they could adjust their production accordingly to meet such opportunities. The precise time for harvesting was usually negotiated between producers and traders/consumers so as to accommodate both parties and to ensure collection directly after the harvest, and thereby the freshness and quality. Often traders get directly involved in the sorting and packing of the fresh produce on the farm, providing opportunities for lengthy communication and the deepening of convivial relations. The relations between farmers and traders/consumers often went beyond purely business transactions as the following quote demonstrates:

“I am very close with my customers, to the point that if one of my customers is facing some difficulty such as a bereavement in the family, I contribute to help out” (interview PCP, Muthale, June 1, 2020).

Furthermore, relations with local traders were underpinned by a greater degree of trust than those with supermarkets and the national fresh produce market:

“I used to sell my chillies to Unidev in Johannesburg, but the agent I was working with was not reliable as I would send a number of products and sometimes he would tell me he did not receive my products and at other times he would tell me a different number lower than the one I sent through, so I thought I am being exploited so I stopped growing chillies as I had no other market” (interview PCP, Muthale, June 1, 2020).

The nature of these relations with customers contrasts with the supermarkets and national markets that have much more rigid delivery schedules and quality requirements. Similarly, the processors and exporters of high-value tree-crop commodities are disconnected from the local context and producer realities and farmers are required to comply with rules and regulations which do not meet farmer needs and realities.

### 5.2.3. Rootedness

Local embeddedness is particularly clear for what collectively is referred to as ‘green leafy vegetables’. This is seen in both regional and individual cultural identity and the coalition of socioeconomic interests and opportunities between producer and traders/consumers.

With regard to the cultural aspect, ‘green leafy vegetables’ (*morogo*), are part of traditional diets, as illustrated by a Pedi proverb: ‘Meat is a visitor, but *morogo* is a daily food’. *Morogo* refers to green leafy plant species that were traditionally harvested in the wild but are increasingly being cultivated. This is particularly the case in Vhembe, which is also known as the centre of origin of Chinese cabbage in South Africa (Jansen van Rensburg et al., 2007, p. 321).<sup>7</sup> The variety of plant species that can be included in *morogo* is broad and varied across the country, depending on ecology, culinary repertoires and changes over time (Jansen van Rensburg et al., 2007). Three species are popular in the production systems of tree-crop farmers in Vhembe: nightshade (*S. nigrum* complex), known as *muxe* in Tshivenda; non-heading Chinese cabbage (*Bassica rapa* L. subsp. *chinensis*), known as *mutshaina* in Tshivenda; and common pumpkin (*Cucurbita pepo*, *C. Moschata* and *C. maxima*) known as *phuri* and *thanga* in Tshivenda (Jansen van Rensburg et al., 2007). These crops are not mainstreamed and therefore seldom found in large retail chains, apart from a few local Spars whom some of the farmers interviewed were supplying. These crops are traded through a network of informal relations either directly with consumers or via informal traders who sell at busy roadside intersections or at informal markets in town. By way of their popularity and place in the culinary repertoire of the TshiVenda and TshiTsonga they can be considered as contributing to the regional and individual cultural identity.

In terms of socioeconomic interests and opportunities, in particular the savings on transportation costs when selling directly to the community or through traders who collect the produce from the farm were key factors that enabled a greater share of value to be attained by the

farmer. Also, autonomy over pricing and transparency around terms and payments were also raised as an important factor that made farmers favour direct sales to community and local traders compared to supermarkets and the national fresh produce market:

“The local market is much better compared to selling my crops at places like Spar, Boxer or Johannesburg fresh produce markets. When I sell my produce at Spar I am selling a bundle of spinach to them for R6, they will tell me they will buy it at R3 and I end up not gaining any profit. Another thing is if they buy 100 bundles from me, they can say, ‘We have only managed to sell 40 bundles and 60 were damaged’, so they will only pay me for the 40 which they say they have sold. Yet there will be no proof of the damaged 60 bundles, which they say they had to throw away. Another thing is they do not pay on time when they take the crops there, but only after they have sold all the crops, so I think this is very unfair ... The profit margins is also much better and higher compared to when I take my product to places like Boxer and Spar, because it will cost me lots of transport and airtime and they don’t call me when I take my products to those supermarkets, so I have to do follow ups myself and as a result using lots of airtime” (interview PCP, Mapate, 24 May 2020).

“I used to sell my chillies to the Johannesburg fresh produce market, but the agent I was working with was not reliable as I would send a number of products and sometimes he would tell me he did not receive them and at another time he would tell me a different number lower than the one I sent. So, I thought I was being exploited so I stopped growing chillies” (interview PCP, Muthale, June 1, 2020).

Engaging directly with traders and consumers in the local market clearly brings more transparency, lower transaction costs and greater remuneration when it comes to trading local vegetables. Traditional leafy greens meet a niche local market where such culturally specific foods are not readily available in most commercial retailers yet are highly favoured by the local populations. Collectively these aspects demonstrate how the movement of these commodities are deeply rooted in both cultural and social relations that are more favourable to the producers than alternative more formal market avenues.

## 6. Discussion

This paper has foregrounded the importance of centring farmer diversity in an analysis of how and why farmers engage in different markets. The polarised debate over different avenues for agricultural commodification amongst smallholders, and the related risks and merits of supplying global versus localised nested markets, tends to obscure the way in which farmers are differentially positioned and thereby engage in different markets and in turn how these different market channels interact and the related outcomes. We demonstrate here that the process of agricultural commodification aimed at high-value export markets is encouraging petty commodity producers into diversified agrarian livelihoods, relating more broadly to a process of re-agrarianisation and re-activation of agricultural land (Shackleton and Hebinck, 2018). We illustrate the potential synergies and complementarity between the production of vegetable crops for local nested markets and export-oriented cash crops. This is linked to the nature or materiality of tree crops, coupled with the socio-economic status of those engaged in their cultivation.

High-value commodities such as tree crops are capital intensive, slow to mature and require extensive areas of land. Hence, unlike the small-scale capitalist tree-crop farmers who are able to generate sufficient off-farm income to invest in tree crops and thus engage in accumulation, petty commodity producers of tree crops without the means to access off-farm income are turning to vegetable crop production as a primary means to generate an income and to enable reinvestment in and/or to complement income from tree crops. This is made possible by their access to land, which they have been unable to fully cultivate with trees

<sup>7</sup> Vhembe is also the region from where Chinese cabbage spreading to other parts of the country through an informal seed multiplication and distribution system (Jansen van Rensburg et al., 2007, p. 321).

due to capital constraints and critically also hinges on access to water. Our findings point to the ways in which agricultural commodification of tree crops can, under certain conditions, initiate and stimulate the production of vegetable crops channelled through nested markets.

Using an agrarian political economy framing of farmers diversity such as a class-based analysis may seem incompatible with nested markets which foreground agency, but by combining them in a sequential manner as we have done is a useful way to situate the dynamics and function of nested markets within a broader context of farmer diversity. As such the typology provides a broader contextualization of socio-economic differentiation amongst tree-crop farmers, based on which we can then situate for whom and why nested markets are of particular relevance. Using the differentiation to connote that there are groups who are better and less better situated to do the patterning. This perspective is also an explicit critique of the risk of losing sight of farmer diversity in market-centred thinking and that we need to differentiate in the degrees of agency and foreground a notion of autonomy as relational rather than intrinsic. This diversified approach engages with the problematic assumption that market patterning has to be analysed through the notion of the ‘peasant position’, thereby narrowly conceiving the field of farmers’ social construction of markets and missing the critical aspects of their agentive combining of local and global markets in relation to their socio-economic position. The paper uses differentiation in similar ways to show that wider processes of commoditization that could widely be considered as falling under the ‘nested market’ notion of Empire, but play out through forms of accumulation by these same well-positioned semi-capitalist farmers. This is also in accordance with the farmer-centred perspective we propose and shows our effort to unpack the dialectical relationship between wider commoditization processes and agentive combining of markets in local contexts.

Our findings illustrate how market channels for food crops produced in orchards and the relations in which they are embedded, demonstrate some of the overarching socio-material characteristics of nested markets that are defined by specificity, connectedness and rootedness (Van der Ploeg et al., 2012). This is particularly the case for the cultivation of traditional green leafy vegetables, which illustrates the distinctiveness and socio-cultural significance to which the notion of rootedness refers. The principles of connectedness was identified in the nature of the relationships between producers and traders/consumers, which are largely non-hierarchical and generate shared value for both parties due to the shortness of the chain, which enables it to be more remunerative. In particular the markets for traditional leafy green vegetables may well resemble many of the features of nested markets as other have also claimed (Manyelo et al., 2015).

However, what this case has demonstrated is that these markets need to be contextualised within a broader portfolio of production. It is through interrogating the nature of the relationship between vegetable crops and tree crops and their related markets that we found that the political dimension of nested markets – engaging them as a conscious reaction to the global industrialised food system (Hebinck et al., 2015) – was not evident. In this context we have seen that farmers’ engagement in nested markets is actually a result of the opportunity to engage in global markets. It is a means to leverage, sustain or complement access to global markets for tree crops as opposed to a reaction to it. Thus, this relationship might rather be considered as mutually reinforcing rather than oppositional. This echoes findings made in the literature on smallholder farmers in sub-Saharan African who actively engage in both local and global markets (Burnett and Murphy, 2014; Vorley, del Pozo-Vergnes and Barnett, 2012). This links to a general critique about the transferability of notions of alternative food networks that embody aspirations of food-system change to developing countries, where it is argued that “engagement in the food system is less about engagement for change but rather engagement for access” (Haysom, 2016, p. 8). Indeed, the findings show that accessing markets for vegetables resembles more opportunity-seeking behaviour to find the most profitable avenues than

an act of resistance to a national and international market dominated by large food and supermarket empires. These findings point to the need to decouple the socio-material dimension of nested markets from the political dimension.

Nested markets, by way of their locally embedded socio-material networks, enable greater value to be derived from specific crops, in this case particularly traditional green leafy vegetables, and as such act as an enabler to accessing global markets for tree crops. These findings call for a much more nuanced understanding of the relationship between nested markets and global markets. It calls for expanding the spatial scale of the ‘nested’ element of nested markets from the local to the global. This case illustrates how the dichotomy between global versus local need not be perceived as inherently incompatible or competitive as some authors have claimed (Sonnino and Marsden, 2006), but rather can be mutually reinforcing, offering smallholders a way to straddle multiple markets through a ‘patterning’ strategy (Manley and Van Leynseele, 2019; Van der Ploeg, 2010) as a way to enable, sustain and complement access to more lucrative global markets. Critically, access to these new opportunities hinges on access to livelihood sources especially during the establishment phase. Nested markets have proved to be one such avenue, particularly for those who do not have access to alternative non-agrarian livelihoods.

## 7. Conclusion

In this paper we sought to apply the theoretical framework of nested markets as an analytical tool to explore the production and marketing dynamics of commercial vegetables cultivated on orchard land in a former homeland of South Africa. We situated our analysis of nested markets within the context of the expanding production of high-value tree crops for global markets. Through our case study we have attempted to expand the discussion beyond the dichotomy between formal/informal and global/local markets towards a more relational and dynamic understanding of how these market systems interact. A better understanding of these interactions can contribute to realising the wider objective of rural development policy which is aimed at livelihood generation through high-value tree crops. Further research is needed on how the patterning of production in relation to different market circuits is constructed over time.

Our case study illustrated that as new market opportunities emerge for smallholders to access high-value tree-crop commodity chains such as macadamia and avocado, this is driving farmers without any alternative off-farm income sources and pensioners to diversify their production from tree crops into food crops, both for household food provisioning and for sale into local markets. The cultivation of tree crops is capital intensive and it takes several years before any returns can be realised, therefore making it imperative that in the absence of alternative off-farm employment farmers are able to sustain themselves and generate some income that can cross-subsidise their orchards. The cultivation of food crops on land allocated for orchards with access to water is providing a means through which tree-crop farmers are doing this. Hence, the cultivation of commercial food crops inside orchards acts as a bridging livelihood strategy and cross-subsidisation of orchards for tree-crop farmers without alternative livelihoods. Essentially agricultural diversification enables access to the production of these high-value tree crops, which would otherwise be dominated by relatively well-off farmers who have access to non-agricultural sources of capital.

We found that different market channels demonstrate degrees of nestedness. This was particularly the case for the locally valued and highly perishable goods such as traditional leafy green, pumpkin leaves/flowers, and tomatoes. While these exchanges resembled many of the socio-material features characteristic of nested markets (specificity, connectedness and rootedness), these markets were engaged for purely pragmatic reasons, such as being the most accessible and remunerative outlets for these products, and not out of a conscious resistance to other types of markets. Farmers tended to cultivate a wide range of produce

specifically to enable them to simultaneously engage in multiple different markets, which include local retailers and national fresh produce markets. Ultimately, they used these different market to leverage access to global markets and not to disengage from them as is often put forward in the literature on nested markets. As such we have argued that the markets navigated by smallholders are not isolated circuits, but articulated systems that function as ‘hybrid spaces of interaction’ (c.f. Schneider et al., 2016) that enable them to gain and sustain access to global commodity markets.

Our findings have implications for rural development policies and practices, particularly in relation to the current commodity-specific focus of the National Development Plan (NPC, 2013), which prioritises high-value subtropical fruits and nuts among other products in an attempt to generate opportunities for rural livelihood. In the current context, where smallholder tree-crop farmers are a highly diversified group, with a minority who are relatively ‘privileged’, ‘well-educated’, and well-positioned to start accumulating and expanding (Olofsson, 2021)) it is particularly important to ensure that these commodity chains are inclusive and not captured by the rural elite, while less well-resourced farmers are excluded. This case study illustrates how for some who could be considered the less well-resourced farmers, growing vegetable crops provides a key entry point that enables access to more lucrative crops such as tree crops, as they have no access to alternative non-agricultural income. Agricultural diversification into commercial food crops is one important avenue that can enable this and should therefore be supported and encouraged though public and private extension. Such extension needs to move beyond the usual single commodity focus towards a more integrated approach that responds to the diverse production systems already practised. This can be done first and foremost by supporting low-tech water access and harvesting solutions and by strengthening and expanding opportunities for growth in the informal fresh produce trade. Supporting this type of agricultural diversification also stands to generate much needed economic opportunities in the local community. These dynamics however need to be considered in their temporal context. The long-term implication for such diversified production systems and the current market configurations is questionable as farmers are reinvesting in their farms primarily by expanding their orchards, meaning that as orchards expand and the canopy closes, vegetable production could become impossible. Additionally, development in the global market for high-value tree crops, particular macadamia which is rapidly increasing in places like China, poses risks for the South African industry and particularly smallholders, as global market could become saturated and prices could fall (cf. Cowen, 1986).

#### Author statement

Malin Olofsson, Conceptualisation, Investigation, Formal analysis, Writing – original draft. Mirjam Ros-Tonen, Funding acquisition, Supervision, Conceptualisation, Writing – review & editing. Yves Van Leynseele, Conceptualisation, Writing – review & editing. Bart de Steenhuisen Pijters, Supervision, Writing – review & editing. Joyeeta Gupta, Supervision, Writing – review & editing.

#### Acknowledgements

The authors are very grateful to two anonymous reviewers for invaluable feedback on an earlier version of this paper. We would also like to thank Albena Sotirova for assistance with the statistical analysis, Prince Mageza for invaluable assistance during the fieldwork, Ricardo Fuentealba Fuentes for comments on an earlier draft and the numerous farmers who with such patience and generosity shared their stories. This paper was supported by a Dutch Research Council grant (NWO, grant number W 08.250.105).

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