


RESEARCH Report 47

Space, Markets and Employment
in Agricultural Development:
South Africa country report



David Neves
and Cyriaque Hakizimana



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Faculty of Economic
and Management Sciences

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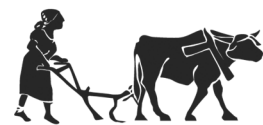
David Neves and Cyriaque Hakizimana



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Space, Markets and Employment in Agricultural Development: South Africa Country Report

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Acronyms and abbreviations

BEE	Black Economic Empowerment
EHU	household enterprise unit
FAC	Farmers Agri-Care
FPMs	fresh produce markets
GMO	genetically modified organism
KZN	KwaZulu-Natal
NSDP	National Spatial Development Plan
OEM	original equipment manufacturer
PBR	plant breeders' rights
R&D	research and development
RGLT	regional growth linkages theory
RNFE	rural non-farm economy
SSFs	small-scale farmers
TVEs	Township and Village Enterprises

I Introduction

Throughout much of the developing world, including sub-Saharan Africa, agriculture is frequently viewed as central to efforts to foster development and reduce poverty. Key conceptual and policy issues accordingly raised in relation to agriculture include questions, such as: Who engages in agriculture? What and how do they farm? What gains do they derive? Who is employed and under what conditions are they employed? While these questions are concerned with the direct impact of agriculture, the developmental potential of agriculture also inheres in its relationship to the larger rural non-farm economy (RNFE). Agriculture is hence most likely to contribute to forms of inclusive, pro-poor development, if its growth is accompanied by expansion of the non-farm economy. The present report considers these issues, including the impact of agriculture on the broader rural economy, in relation to South Africa.

Central to this enquiry is the larger structure of South Africa's RNFE, including the manner in which agriculture influences it. The report therefore describes the findings of research undertaken on the spatial and institutional articulation of markets, settlements and livelihoods, in order to examine the relationship between farm and non-farm activities. This is done to facilitate reflection on the contribution (and prospective contribution) of the non-farm economy on rural employment and livelihoods. These are questions of theoretical and policy salience, not only because of their implications for understanding agriculture and the RNFE, but also for a more expansive consideration of livelihoods, poverty and employment.

A dominant assumption in relation to agricultural development has long been that agricultural activities invariably stimulate the surrounding RNFE. This assumption is critically appraised in what follows. The assumption frequently co-exists with a second assumption, namely that individuals displaced from farming by rising productivity and agricultural modernisation will secure employment in the rural non-farm sector or urban economy. In so doing, it is assumed, rural dwellers will thereby re-enact the broad trajectory of economic and demographic change experienced by most developed societies since the Industrial Revolution.

Yet mounting evidence across swathes of Africa, Asia and Latin America suggests this is increasingly not the case. Exit from agricultural or land-based livelihoods is, to a growing extent, unmatched by access to rural non-farm or, alternatively, urban employment. The dynamics of this, a 'stalled agrarian transition', are starkly evident in South Africa and driven by the legacy of land dispossession and widespread structural unemployment. Within South Africa the reality of poverty and inequality, amidst widespread de-agrarianisation and structural unemployment, provides the backdrop against which state policy objectives to increase rural employment are articulated.

Against this backdrop the present research report seeks to examine the relationship between on-farm and rural non-farm employment. It does this within a specific, geographically circumscribed setting, and uses the subsequent analysis as a conceptual 'springboard' to consider these issues in relation to South Africa nationally, and the region more generally. The research presented here comprises of a series of case studies developed in the Weenen district of KwaZulu-Natal (KZN), but locates them within larger, national dynamics and trajectories of change. The present text, in turn, is part of a larger research project examining these dynamics comparatively across three southern African nations, namely South Africa, Zimbabwe and Malawi.

The text of the South Africa country report is structured as follows. At the outset, the larger policy focus and research questions are explicated, followed by discussion of core conceptual issues related to the RNFE. The report then proceeds to examine South African agriculture and agricultural employment, before considering the contribution of agriculture to the larger rural economy, including the nature of its impact on rural employment. These theoretical issues are contextualised and located relative to larger global debates, specifically regional growth linkages theory (RGLT), along with critical reappraisals thereof. Following this discussion, the study's research methodology and precise research questions are described.

At this point the report then turns to discuss the empirical material. An overview of the research setting is followed by detailed presentation of the empirical material. Once the case study and related data are presented, the report proceeds to discuss the implications of the findings for understanding rural employment. It does this by first examining employment and livelihoods both up- and downstream of local agricultural (horticulture and beef) production networks. Following this, the report discusses the RNFE in some detail, including the impact of primary production agriculture and some of the major determinants on employment within it. The report concludes with detailed discussion of the policy implications that emerge from the research.

The policy focus

Central to this enquiry are key questions concerning rural employment within South Africa, particularly in relation to the RNFE. The focus is the rural poor – who increasingly tend to be unemployed, landless and estranged from agriculture. As already suggested, the frequent assumption is that such displaced rural dwellers will secure employment in alternate sectors or locales. This assumption co-exists with another, namely that agricultural growth invariably contributes to the adjacent non-farm economy. Both these assumptions are critically examined in the report that follows. Both are questions with resonance for public policies concerned not only with agriculture and rural development, rural livelihoods, employment and poverty – but also with larger issues related to vulnerability, human welfare, social cohesion and political stability.

The overarching policy problematic that serves to frame this research asks: What is the relationship between farm and non-farm employment, and how does it contribute to broad-based and inclusive rural growth? Subsumed within this overarching question are four subordinate questions:

- What are the opportunities for non-farm employment in the South African countryside? How can these opportunities be supported and strengthened, particularly for rural inhabitants who are landless or displaced from agriculture?
- How can agricultural development policy support and improve not only on-farm production and employment, but also opportunities for non-farm-based livelihoods and employment?
- How do the scale of farming and nature of farming enterprises shape the prospects for broad-based and inclusive economic growth?
- What patterns of spatial organisation and integration increase the opportunities for inclusive forms of economic growth? Or conversely, what dynamics serve to undercut it?

The research focus

The larger research problematic and its policy dimensions have been briefly suggested. So, too, has the larger objective of the research, namely to understand the relationship and linkages between farm and non-farm employment, in order to consider the implications of this relationship for employment and poverty. This superordinate research question can usefully be recast and disaggregated as: What are the linkages, complementarities and connections between farm and non-farm employment?

A key analytic question of the research concerns the structure of agriculture and its contribution to the RNFE, through various linkages and multipliers. The research focus furthermore foregrounds the question of how these linkages are mediated by relationships across space ('spatial linkages'), and the everyday working of the agricultural value chains and market arrangements. The research that follows considers the extent to which the above linkages, multipliers and relationships are therefore patterned by social, institutional and political dynamics.

The research furthermore seeks to understand these issues in relation to key variables, such as production systems, scale and the capital intensity of agriculture. It contemplates, for instance, whether large-scale and small-scale farmers have differential impacts on non-farm employment. It asks whether varied patterns of the RNFE offer different affordances for employment and, consequently, forms of pro-poor and inclusive economic develop. In other words, it poses larger conceptual and empirical questions concerning dynamics surrounding the non-farm economy in relation to questions on employment and livelihoods.

The RNFE in South Africa

In both popular and even policymakers' conceptions, rural employment is frequently conflated with agricultural employment. Although agriculture is historically a significant source of rural employment and livelihood-making, a key object of the current inquiry is the RNFE.

The RNFE includes a diverse array of sectors and activities. The term encapsulates the non-primary production (viz. 'non-farm') aspects of the agricultural sector, such as the supply of upstream inputs or the downstream processing and marketing of agricultural commodities. In addition, the RNFE includes other forms of primary production and land-based activities, such as forestry or natural resource extraction, which are not conventionally counted within the category of 'agriculture'. Finally, the concept of the RNFE also includes sectors unambiguously distinct from agriculture, such as the rural manufacturing or the services sectors.

Quantifying the RNFE and discerning its associated impact on employment within South Africa is remarkably difficult. This is due to the fact that the term is not a well-used demarcation for economic activity. Therefore few dedicated statistics are collected on the RNFE, even by the official statistics agency. Instead, classifications of economic activity (and their corresponding employment numbers) are typically made in sector-based terms; with sectors defined and enumerated in terms that straddle the urban rural divide, such as mining (Aliber et al. 2013). Moreover, the somewhat expansive category of the RNFE also includes activities that are neither unitary nor homogenous, such as tourism, which straddles several sectors and is, spatially, largely urban dominated. This makes it difficult to compute the size or extent of employment within a circumscribed South Africa 'rural economy', or 'rural non-farm economy'.

Describing these difficulties, Aliber et al. (2013) makes recourse to a spatially informed definition and data set, by drawing on the National Spatial Development Perspective (NSDP) identification of 26 major zones of economic activity across South Africa. These, unsurprisingly, include the major metropolitan areas (the conurbations of Gauteng and Cape Town, along with Bloemfontein and the eastern seaboard cities of Durban, East London and Port Elizabeth). However, these zones also, significantly, include a number of large secondary cities, including mining cities of the northern and north-west platinum belt and with large ex-homeland centres (such as Mthatha in the Eastern Cape). Many of these secondary cities are not administratively designated as metropolitan municipalities, yet contain sizeable populations, economies and clusters of the RNFE. Employment in South Africa's RNFE is not only unclear, it takes on very different forms in South Africa's dichotomised countryside, which includes the former homelands as well as the 'formal rural' areas (viz. former white South Africa).

Rural unemployment in the former homelands – in relation to both the RNFE and primary production agriculture – is reflected in (and contributes toward) the persistence of widespread poverty. The former homelands are historically characterised by 'thin' markets, distorted and dysfunctional settlement patterns, comparatively high population densities and classic rural 'displaced urbanisation' engendered by apartheid. The former homelands are simultaneously neither urban nor functional rural spaces. Yet, despite high levels of poverty and deprivation and substantial continuities with the apartheid era in the spatial distribution of deprivation (Noble and Wright 2013), Aliber et al. (2013) surprisingly suggest that there is some evidence of increasing rural employment (albeit it at low levels, and off the low base) within the former homelands. However, these areas remain economically beleaguered and characterised by widespread poverty and unemployment. They stand in contrast with the agrarian zones of South Africa's former 'white' countryside, where comparable dynamics of inequality and poverty exist against the backdrop of advanced industrial agriculture.

Having defined and described the concept of RNFE and some of the empirical difficulties in analytically 'capturing' it in relation to the South African context, an important point to foreground is that even the precise nature of the relationship between agriculture and the RNFE is complex and contested. As previously suggested, it has long been assumed that the agricultural sector contributes to the non-farm economy by increasing local demand and enabling local multiplier effects through 'linkages' between the farm and non-farm activities. These linkages are typically conceptualised in terms of production and consumption expenditure. Of these, production linkages extend both backwards (to agricultural inputs) and forwards into output marketing. Consumption expenditure, in turn, comprises of resources spent both by producers (in this case, farmers), and their employees. Yet a key question remains the extent to which local production and economic activities are in reality locally 'embedded' economically, or whether they 'leapfrog' or bypass a given rural locale.

The precise nature of the interaction between agricultural development and the RNFE, along with their contribution to poverty-reducing, pro-poor rural development has been vigorously debated in international literature (Mathenge and Tschirley 2008). These debates are returned to later in the present report, but before this can be done the South African agricultural sector needs to be sketched out. This discussion sets the foundation for later considering the relationship between the agricultural sector and the RNFE.

2 South Africa's agricultural sector

Having foregrounded key questions around RNFE, this section returns to examine agriculture in South Africa. Primary production 'on-farm' agriculture (the activities against which the notion of the RNFE is implicitly counterposed) is the focus of what follows. This contextualising overview of agriculture is followed by discussion of agricultural employment in South Africa, including in relation to the larger dynamics of agrarian change. These two sections serve to preface explication of the relationship between agriculture and the RNFE.

South Africa has long been characterised by a highly dualistic agriculture sector. With the 1994 advent of democracy approximately 60 000 white commercial farmers occupied 85.8 million hectares or 87% of the nation's farm land and produced approximately 95% of agricultural output. The remaining 13% of arable land (approximately 14 million hectares) was occupied by a population of 15 million Africans, largely in the former homelands (Hérault and Thurlow 2010; Bernstein 2013). Commercial agriculture therefore continues to predominate, but the precise scale and extent of agriculture undertaken by black producers is a difficult question to answer. Quantifying it is a task complicated by a paucity of data on both the numbers and types of black farmers in South Africa.

Using the annual Labour Force Survey data for 2007, Aliber et al. (2009) suggest that there are about 4 million black African farmers, of whom 92% are subsistence farmers, and live chiefly in the communal areas. (This is the upper end of the range of conventionally computed figures of African producers). In addition, Aliber et al. (2009) advance a figure of about 320 000 of these being 'commercially oriented smallholders'. The difficulties of understanding and quantifying small-scale agriculture producers are only exacerbated by imprecision in defining the very category. Numerous definitions exist of black small-scale farmers, incorporating a variety of distinctions that reference the scale of production, the objective of production (varying from subsistence to exclusively market production), how workers are used and remunerated, the extent and sources of capital used for production, and finally, the extent and terms of inclusion into formal agro-food value chains (e.g. tight versus loose) (see Greenberg 2010: 13). The nature of Africans' farming enterprises and the precise composition of these categories – who they contain, what those within the categories do, and where they are geographically – are indistinct or contested in the literature and official statistics. These debates are, hence, neither exhaustively presented nor even definitively adjudicated in the current report. It suffices to stress the following three points: firstly, that there are significant variations even between African farmers; secondly, small-scale or 'own production' agriculture predominates amongst African producers; and, thirdly, a concern with segmenting and discerning the 'productive' (typically semantic code for 'market-orientated') black farmers is an enduring policy concern within South Africa.

South Africa's agricultural sector is not only highly unequal and racialised; it is marked by high degrees of concentration, the consolidation of market power, and vertical integration. Rising concentration, evident since the 1960s and 1970s, and incipient neo-liberal and anti-protectionist impulses only deepened after the political transition of the early 1990s. The lifting of trade sanctions was swiftly followed by the abolition of single-channel marketing, rapid trade liberalisation and market deregulation. This opened up the flow of investments and competition

in the agricultural sector (Bernstein 2013), but saw the number of commercial farming units¹ decline from 60 000 in 1994 to about 45 000 by 2002. Even more significantly, 673 farming units (viz. 1.6% of the total) generate a third of national gross commercial farm income. A third of commercial farms with a turnover of between R300 000 and R2 million are family owned or managed to varying degrees, but the very largest enterprises are modern agribusiness. They typically operate on multiple-owned or rented landholding units, and are characterised by commensurate shifts from family to corporate forms of farm management². Conversely, at the other end of the scale, about 50% of 'commercial farms' with a turnover of less than R300 000 are owned by part-time farmers, many of whom supplement their income from sources elsewhere (Bernstein 2013). In these cases farming is an adjunct to, rather than primary source of livelihood-making.

Larger processes of concentration, consolidation and vertical integration within agriculture have accelerated since the end of apartheid. For instance, the three biggest seed production companies (Monsanto, Pannar Seed and Du Pont Pioneer) shared between them 90% of the market for grain seeds before Du Pont Pioneer bought Pannar in 2012, creating a duopoly. The fertilizer industry is effectively controlled by three companies (Sasol Agri, Omnia and Kynoch). The six leading global research-based agrochemical companies, Monsanto, Syngenta, Dow, DuPont, Bayer and BASF dominate in the local industry. Their dominance is further entrenched by regimes of intellectual property, which increasingly extend to patents on genetic material. Finally, these patterns of concentration are not limited to upstream intermediate inputs. Similar processes of concentration are evident downstream of agriculture, within processing and retail sectors of the agro-food system.

In the food-processing sector, four large multinational companies account for approximately 80% of processed and packaged food staples in South Africa (National Brands, Pioneer Foods, Tiger Brands, and Nestlé SA). Throughout the agro-food system domestic and foreign multinational corporations are linked through myriad cross-holdings, licensing and branding arrangements. In the retail sector the two largest supermarket chains in South Africa, Shoprite and Pick 'n Pay, accounted for about half of market share by 2007 (Bernstein 2013) and four corporate supermarket retailers effectively dominated the formal food system, rendering farmers price-takers. Furthermore, the highly concentrated nature of enterprises upstream and downstream of agriculture is a characteristic evident in many sectors other than the agro-food system. It reflects the highly concentrated and oligopolistic character of the South African economy more generally.

Against the structural realities of industrial farming, concentrated corporate agribusiness and retailer-dominated value chains, existing commercial farmers are caught in a continual cost and price squeeze. Agriculture is a commercially challenging terrain where the pressure is constant and exerted downward on all areas of production, including on labour costs. This reality has stark implications for both the numbers of workers employed in agriculture and their wage levels: both dimensions are frequently under pressure.

Finally, land reform is a part of the political context of agriculture in South Africa. A detailed discussion of the vicissitudes of post-apartheid land reform is well beyond the scope of this report. Suffice to say that in its earliest incarnations land reform was envisaged as a mechanism

¹ Official statistics tally 'farming units'. A farm unit is a unitary commercial entity that may hold more than one portion of land or 'farm'.

² Even if, as it is in several cases, ultimate ownership is vested in family members.

for the development of a viable and productive smallholder farming sector. The two subsequent decades have seen sharp changes in policies, programmes and even the targeted African beneficiary groups. However it can be safely stated that land reform has been marked by, at best, modest successes, with on approximately 4 million hectares transferred by 2010, (about 5% of commercial farms versus the initial 30% target) (Cousins 2005; Bernstein 2013). Where land has been successfully transferred, a dearth of state support, large claimant groups, the difficulties of collective management and the hard realities of highly competitive deregulated agriculture have proved considerable constraints. In its most recent iterations land reform has shifted much of its support to emergent African commercial farmers – effectively the deracialisation of commercial agriculture – as opposed to supporting small-scale farmers.

Agricultural employment in South Africa

Having discussed the South African agricultural sector, the present section examines employment and employment trends. Agriculture is significant in relation to national employment and developmental imperatives: as an area of policy concern – but also promise. The agricultural sector is often an area of policy concern because historically it has been characterised by low wages and precarious forms of employment (albeit with variations). As an area of promise, the agricultural sector offers the hypothetical prospect of an economic foothold to a substantial proportion of South Africa's working-age adults, who are unskilled, poorly educated and geographically far from urban labour markets. Accordingly, South African policymakers have an often sanguine view of the potential of agriculture to create employment, evident perhaps most vividly in the National Development Plan, which proposes the creation of a million new agricultural jobs by 2030 (643 000 primary and 326 500 secondary jobs) (National Planning Commission 2013: 220).

Yet despite these policy ambitions, South Africa's current picture of agricultural employment shows a direction that is precisely the opposite – that of a long term downward trajectory. Sparrow et al. (2008), for instance, show that permanent farm employment fell from 756 397 to 481 375 between 1960 and the 1990s. About 10% of permanent jobs on commercial farms were lost between 1992 and 1995 and the contribution of agricultural employment in the total economy contracted from 15.2% in 1991 to 12.3% in 1996 (Simbi and Aliber 2000). Some estimates put the total loss of jobs in agriculture in the first half of the post-apartheid period (between 1993 and 2006) at approximately 40% (Bernstein 2013). Moreover, job shedding in agriculture and farm evictions are linked, even within the post-apartheid era. Between 1995 and 2004, about 2 million black people left white farms, and of these an estimated 930 000 were subject to eviction (Wegerif et al. 2005). The loss of farm employment was the main reason for eviction cited in approximately 70% of the cases (Bernstein 2013).

Reductions in agricultural employment have also been accompanied by larger shifts in labour management and the conditions of work. Wegerif et al. (2005) notes that about 49% of the total permanent employment in agriculture switched to casual employment between 1990 and 2002 – a general trend that persists to this day. This casualisation in the agricultural sector, providing less secure and consistent employment, has been long noted, including by du Toit and Ally (2007). They found that about 60% of Western Cape horticultural farmers had considerably decreased the numbers of permanent employees in their workforce and were increasingly adopting strategies of labour flexibilisation. More contemporaneously, in their examination of export-orientated deciduous fruit production, Barrientos and Visser (2012) discern two phases in

labour regimes in the post-apartheid period. The first, from 1994 to 2007, entailed a downsizing of the labour force, and employment of a core of on-farm workers augmented by seasonal employees. The second, from approximately 2007/2008 to the present, entailed a reduction in the proportion of permanent to seasonal workers, and increased demand for more educated and skilled workers.

The explanations for the significant decline of agricultural employment receive at least three main points of emphasis in the literature. The first, from the classical economic tradition, is predicated on steady economic growth leading to the shrinking role of agriculture in the economy as a whole – a classic ‘agrarian transition’. From this perspective, agricultural job shedding is inevitable, universal and even normatively desirable. The theory holds that as urban wages increase with the growth and diversification of the economy (including manufacturing and services) farm incomes and wages shrink in relation to other opportunities. Inefficient agricultural producers (and their employees) exit agriculture in the face of increasing competitive market pressures, and higher-reward opportunities elsewhere. These factors see a concomitant increase in average farm sizes and expansion of agriculture mechanisation (Hayami and Ruttan 1987; Timmer 1990).

The second view of job shedding and casualisation in South African agriculture emphasises the labour environment, specifically state policies and labour legislation. In the post-apartheid period, the Labour Relations Act (1995), the Basic Conditions of Employment Act (1997), the Unemployment Insurance Act (2001), health and safety legislation, and (from 2001 onwards) minimum wage legislation, were extended to farm workers. Some argue that this tightening of the regulatory environment has raised transaction and wage costs (Sparrow et al. 2008) leading farmers to shed employees and engage in labour substitution through mechanisation and outsourced labour. In a similar vein, Thirtle et al. (1995) attribute change in South Africa’s agricultural labour employment trends to the relative increase in the cost of labour, precipitated by government policy. This is a viewpoint frequently advanced by commercial agriculture, and they readily rank labour legislation as being among the most significant factors explaining changes in their labour use and management (Du Toit and Ally 2007). Some commentators consequently question the appropriateness of labour laws and minimum wage legislation, given the trend of declining agricultural employment, persistent poverty and unemployment (Sparrow et al. 2008: 75).

However, much as it is acknowledged in relation to other sectors of the economy, the impact of minimum wage legislation on agricultural employment is contested. Conradie’s (2004) examination postulates that a wage increase of 10% decreases farm employment by 3–6%, depending on the agricultural subsector involved. Bhorat et al. (2013) discern similar general trends: the advent of the minimum wage in agriculture increased wages by about 17%, but employment fell quite considerably in response (see also Newman et al. 1997). Yet, in a different commodity sector (sugar cane) Murray and Van Walbeek (2007) find little negative relationship between labour legislation and farm employment (see also Naidoo et al. (2007) for compliance with minimum wage legislation in South Africa). Establishing the relationship between agricultural wage levels and employment is not only an ideologically contested undertaking, it is confounded by the marked differences across geographical regions, commodity subsectors, scales of farm and levels of productivity.

The third view places emphasis squarely on non-economic factors. For instance, Simbi and Aliber (2000) dispute much of the preceding two positions, arguing ‘the change in the labour regime is not being driven by an increasing real wage or labour scarcity, and it is not (or no longer) being driven primarily by the falling real cost of capital or government policies to that effect’. They assert that

farmers' collective decision to shed permanent workers is driven by largely non-economic considerations, including farmers' fear of losing control over resident farm workers due to (future) regulation and legislation, and farmers' sense that because of democracy and a state commitment to human rights, farm workers are increasingly difficult to manage (Simbi and Aliber 2000).

Finally, the above three positions, respectively emphasising the economic, the regulatory and the social (and political) factors that potentially undercut agricultural employment, are not necessarily as mutually exclusive as their proponents may suggest. It is likely that all three come to shape decisions and outcomes around agricultural employment and employment strategies at farm level.

The RNFE and agriculture: Conceptual issues

Having discussed South Africa's RNFE and the agricultural sector, the present section of the report considers linkages between the two. This discussion invokes larger theoretical debates, and serves to provide conceptual framing of the core research question that is subsequently examined.

The place of the RNFE, its linkages to agriculture, and the developmental task of fostering them have been highly contested in international experience. Two main positions are evident, and provide a schematic conceptual framework for understanding the RNFE.

The first position flows out of regional growth linkages theory (RGLT), which differentiates between 'tradables' and 'non-tradables' to account for the RNFE. 'Tradables' are goods and services produced in a regional economy and potentially marketed outside its boundaries, with 'non-tradables' comprising those that are consumed within the region. RGLT emphasises the important role that tradables play in determining the level of local output and income. The production of tradables is a driver of economic growth, which generates additional demands for local non-tradables, to 'supply inputs, process outputs or furnish consumer goods to workers in the tradables sector' (Haggblade et al. 2002: 31). (See also Haggblade et al. 1991.; Haggblade and Hazell 2010.) Hence growth in tradables potentially produces second-round benefits by driving demand-led growth locally. As Haggblade et al. (2002) argue, output of tradables propels the regional economy and is an engine of rural growth. While the ancillary activities become 'handmaidens' of growth, their prospects are shaped by the rate of growth in tradables output'.

Within the RGLT, as the demand for tradables is located beyond the regional boundaries and prices received are often independent of local production, the growth in tradables is primarily determined by supply side constraints. Accordingly, what is needed to overcome these constraints is the expansion of production and sale of tradables. This would, RGLT argues, lead to additional income and demand for local non-tradables (Haggblade et al. 2007).

From a policy perspective, the proponents of RGLT emphasise that interventions strengthening the supply side of the non-tradables and ignoring the importance of growing regional tradables are misguided, because 'increasing the supply of non-tradables in the context of stagnant tradables output is likely to be counterproductive for the producers of nontradables, depressing their prices and incomes' (Haggblade et al. 2002: 32). Hence assessment of the potential for both economic growth and cost-effective policy interventions should be guided by the available tradable activities, to drive growth in demand for local non-tradables. Haggblade et al. (2002) categorise many rural non-farm activities, especially in developing countries, as non-tradables, and regard these activities as subservient to, rather than drivers of, rural economic growth. While they acknowledge that in more liberalised economies, export of some rural non-farm goods and services can serve as drivers of rural economic growth, Haggblade et al. (2002)

identify three main tradables – agriculture, natural resource extraction and tourism. Of these three, agriculture is considered the preeminent of the tradables, particularly in developing countries. This view, therefore, is fundamentally optimistic concerning the ability of agriculture to drive rural growth.

RGLT puts much emphasis on the role of agriculture in shaping and determining the trajectory of growth in RNFE. For instance, Wiggins and Hazell (2008) argue that the composition and patterns of growth observed in the RNFE differ significantly in dynamic agricultural settings, relative to stagnant rural areas with dwindling agriculture. In the former, the dynamic farming sector makes available an agricultural surplus that, in turn, stimulates growth in RNFE through various linkages. In the latter, a declining or static agriculture leads to declining household purchasing power and a situation where 'specialized non-farm enterprises and households emerge, not to exploit potential productivity gains, but because of an absence of opportunities in agriculture and a shortage of both rural savings and investible capital ... [so] prospects for the rural non-farm economy remain bleak' (Wiggins and Hazell 2008).

Historically, RGLT emerged from a series of economic debates over the role of agriculture in the process of industrialisation. Teng-Hui Lee's (1971) seminal work argued for a close link between agricultural investment and Taiwanese industrial growth. Similarly Bell, Hazell and Slade (1982), examining the Muda irrigation scheme in Northern Malaysia (regarded as a successful example of Green Revolution inputs), argued increased income from agricultural growth generated multiplier effects that stimulated regional non-agricultural growth. Using a metric derived from a social accounting matrix, they quantified the direct and indirect effects, and estimated that every \$1 of value stimulated an additional \$0.83 in the regional RNFE. The underlying assumption is that the supply of regional non-tradables is perfectly elastic; the profits from agriculture flow automatically into regional non-agricultural diversification through complex and complementary linkages between farming and the RNFE.

Two main types of farm/non-farm linkages, are identified by RGLT, namely production and consumption expenditure (Davis and Bezemer 2004). Production linkages are further divided into backward (upstream) and forward (downstream) linkages. The former include intermediate inputs such as agrochemicals; the latter encompass marketing and agro-processing. Expenditure linkages follow a logic whereby it is assumed that households are likely to spend income obtained from their income generating activity (either farm or non-farm) on items emanating from either sector (e.g. farmers may buy non-farm items using the income earned from farming; likewise those employed in the non-farm sector buy food). The expenditure linkages can be divided into two categories of linkages, namely, consumption (viz. household consumption) and investment linkages (namely expenditure used to finance farm or non-farm activities). Hence income generated in agriculture can, for instance be invested in non-farm activities (Davis et al. 2002).

This theory assumes that the typology of spin-off ('multiplier') activities emerging from these linkages will depend on the nature and structure of the farming sector and the type of growth that is occurring. Proponents of RGLT argue, for instance, that as the structure of farming in a setting requires particular inputs, the backward production linkages are likely to emerge and increase. Similarly, if farm outputs require processing before the final consumption, forward production linkages appear. Likewise, proponents of the theory postulate that growth in the farming sector that induces rural income growth will foster growth in consumption and possibly investment. However, the proponents of RGLT concede that, even in the presence of agricultural growth, other factors, such as incentives and capacity to invest are critical for fostering a viable non-farm sector. Furthermore, they warn that, even with appropriate incentives and a degree of

investment capacity, spin-off activities may stay in the region or exit, depending on, among other things, the spatial arrangements of production and local consumption patterns. They caution, for instance, that farmers may prefer to purchase inputs from distant sources or spend their income on imported goods in the region. Likewise, outputs can also be processed outside the region (Davis et al. 2002; Escobar et al. 2002; Woldehanna 2002).

The above caveats are the fault lines along which various commentators have contested RGLT. Referencing the Asian successes Hart (1998a) shows that diversification of local rural economies does not automatically emerge from agricultural growth and market expansion. Instead 'intersectoral and spatial linkages depend crucially on the social organisation of production, the conditions of access to resources, and the social logic of investment – that is, who gets the surplus and what they do with it – as well as on wider configurations of political-economic forces' (Hart 1998a: 27). Far less sanguine on the inevitability of agriculture driving these effects, Hart argues that historically specific processes produce differentiated outcomes, and divergent paths of sectoral and spatial development. Citing evidence from Malaysia, Taiwan and China, she illustrates how the processes and dynamics that produce rural non-agricultural diversification are more complex than the simple, linear trajectory contained in RGLT suggests.

Reappraising Malaysia's Muda region, Hart (1998a) argues that agricultural growth in this region did not significantly impact on diversification of the region's RNFE. The first reason for the absence of a dynamic RNFE lies in what she terms 'the logic of investment'. The investment patterns among two main ethnic groups residing in this region – Malays and ethnic Chinese – did not facilitate the development of a class of industrialists and entrepreneurs, and thus a growing RNFE, but instead saw major capital flight out of the region through at least two main mechanisms.

On the one hand, ethnic Chinese households, who arguably benefitted disproportionately from rising incomes, exported large proportions of their resources out of the region through the banking system, as well as direct investments in real estate elsewhere. This resource 'haemorrhage' is partially attributable to Malay Reservation legislation that significantly restricted ethnic Chinese from access to property rights, together with the locally strong fundamentalist Islamic political party (PAS) that challenges the position of non-Malays. On the other hand, (majority) ethnic Malays eschewed investment in the region's economy for different reasons. Hart (1998a) shows that particularly wealthier households invested massively in 'Amanah Saham Nasional (ASN)', one of the mechanisms set up under the New Economic Policy in 1971 to transfer assets into Malay hands. The national unit trust fund offered them high and secure returns. Malays also made substantial investments in the Muslim pilgrimage to Mecca. The National Pilgrimage Board collected substantial resources from the region through a local branch, but invested them elsewhere (oil-palm estates in the east coast states, shipping and real estate in other provinces). Tellingly, the local farmers' association (most of the wealthier Malay households held shares) made the bulk of its investments outside the region.

Hart (1998a) therefore calls into question the multiplier effects estimated by the growth linkages models, a key issue related to the definition of the regional non-tradables used in these RGLT models. The goods purchased within the region included items such as Japanese colour televisions, refrigerators and other imported items that enjoy a widespread purchase, particularly among high-income groups. Hart argues their inclusion in the category of regional non-tradables provides misleading estimates of rural non-agricultural employment growth resulting from local. In other words, the income generated from agriculture spent on 'imported' items is independent of local non-agricultural production.

With this in view, Hart (1998a) denies that agricultural growth played a significant role in creating a dynamic RNFE in Muda region; a direct departure from the relative optimism of work rooted in RGLT. She argues that the limited non-agricultural diversification observed in the region was attributable to massive national government spending, a process that was arguably politically motivated, as the Muda region's larger state of Kedah was the home state of the Prime Minister, and received a disproportionate share of government funding and foreign direct investment in rural industrialisation. Politically, this was a tool used by the state to alter the influence of a powerful class of ethnic Chinese capitalists in the Malaysian economy. She notes that the increase in non-agricultural activities were mainly in commerce and services and were dominated by public services, which were the main source of employment growth in the region.

While Hart (1998a) provides a compelling analysis of the non-agricultural diversification in the Muda region of Malaysia, her analysis of the Taiwanese and Chinese cases is potentially more readily vulnerable to critique. She starts by showing that these two countries experienced unprecedented agricultural growth following land reform (albeit at different stages of their economic development), and that agricultural expansion generated significant backward and forward linkages. At the same time she argues 'consumption and production linkages do not provide a sufficient explanation of the speed and spatial distribution of rural industrialization' (Hart 1993: 21). Instead, she attributes the increase in rural industrialisation in these two countries to 'urban push' factors (rather than simply 'agricultural pull'), whereby rising production costs in urban areas drove a shift to rural industries. Furthermore, the dynamics of the Taiwanese rural non-agricultural diversification is that 'Taiwanese rural industrialization is not simply a localized process operating directly via production linkages and demand for regional non-tradables' (Hart 1993: 18) but was shaped in important ways by broader industrial dynamics. She identifies what she refers to as 'social organization of production' (in this context, extensive systems of industrial subcontracting) as an important explanatory factor to understand RNFE diversification in Taiwan. Unlike in other large Asian economies, such as Japan and South Korea, where subcontracting activities cluster around one big firm, subcontracting in Taiwan 'is characterized by a plethora of small firms linked through complex, multi-layered chains, and by a more highly developed division of labour' organised through familial, kinship ties and networks (Hart 1993: 19). It is precisely this 'social organization of production' underpinned by accessibility to land through land reform and encouraged by urban pressure on production costs in an open economy, that Hart (1998a) argues led to the development of a vibrant Taiwanese RNFE.

Less clear, in Hart's analysis of the Taiwanese rural non-agricultural diversification is what precisely happened in agricultural growth. She partly argues that the Taiwanese government captured the agricultural surplus after the land reform and used it to roll out massive rural infrastructural development that later facilitated the Taiwanese decentralised rural industrialisation. It is, however, not clear how the state captured agricultural surpluses and what exactly happened at the household level with regard to the uses of the windfalls generated by booming agricultural growth. In this respect, Hart appears to be in agreement with Lee's (1971) work on the key role of agriculture in Taiwanese rural industrialisation. The answer to how the urban push factor intersected with the booming agricultural growth and rural development remains somewhat indistinct.

Moving to the case of China, Hart (1998a) maintains the same argument that 'urban push' not 'agricultural pull' is the main explanation for Chinese rural industrialisation, and that land reform has played a critical role in this process (although via different mechanisms vis-à-vis capitalist Taiwan). While the 'social organisation of production' through a somewhat unique sub-contracting system was the key mechanism through which rural non-agricultural

diversification took place in Taiwan, in the Chinese case institutional innovation, in the form of Township and Village Enterprises (TVEs), is regarded as the main driving force behind rapid expansion of rural non-agricultural diversification.

Hart argues that the local state-driven TVEs have created a system in which the bulk of the profits of rural industries are controlled by local governments and disbursed within local circuits of investment. These institutions emerged from fiscal reforms that started in the early 1980s. They were intended to reduce the fiscal burden on the central state and allowed the local authorities to retain most of their revenues. The TVEs are tied into the local, national and global economy in complex and diverse ways: most TVEs engaged in subcontracting with either foreign capital or urban-based, state-owned industries (Hart 1998a).

The financing of the TVEs reveals key dynamics. Local communities invested massively in the TVEs (albeit at different scales across provinces). For instance, the local community provided about 30% of the start-up capital for TVEs in Jiangsu province and the remainder was provided by foreign investors and central state-owned industries. In Sichuan and Zhejiang provinces, Saith (1995: 250) reported that 'with exception of the "external" funds invested by non-rural partners, the bulk of the investment finance of rural enterprises originates, albeit indirectly, from rural households' through the funds and credit co-operatives that rural households used for savings accumulation. Saith (1995) therefore argues that agricultural surpluses have effectively been channelled into local industries. Saith's (1995) finding suggests that Hart's (1998a) 'urban push' argument to explain the rural non-farm diversification is only part of the story in China. The role of rural households' capital in the TVE's operations (which imply the role of agriculture in driving RNFE) is not given much attention in Hart's (1998a) analysis. However her larger insights that rural industrialisation was propelled by intensified competition and industrialists' search for lower cost production sites in Taiwan and China (and to some extent in Malaysia) remain valid. Her argument usefully emphasises the important role that a broad-based access to land and other rural resources had played in creating an environment supportive of the development of dynamic rural non-agricultural diversification.

In conclusion, these larger debates have important implications for understanding the RNFE in South Africa. Hart's critique of the RGLT notion of a virtuous cycle of agricultural production (viz. 'tradables') contributing to local RNFE growth, foregrounds a number of issues that are salient in the South African context. These include the large extent to which goods 'imported' (from outside the focal region) are included in a (RGLT) computation of regional 'non-tradables'; and the rapidity with which local 'expenditure' 'haemorrhages' out of South Africa's rural economies, against the backdrop of a powerful, concentrated formal economy. Finally, South Africa's political context and 'social organisation of production' see the state transfers from state welfare payments to civil servant salaries often assuming an important de facto role in sustaining the RNFE. Hart's criticism of RGLT has fundamental heuristic value; it underscores the necessity of a focus on spatial linkages, along with the need to understand both the logic of investment and prevailing patterns of production, consumption and investment – all of which are key issues within the rubric of the present research.

Research questions and focus

The objective of the present research project is to understand relationships and linkages between farm and non-farm employment, and explicitly consider the implications for employment, poverty, and vulnerability. The overarching research question can helpfully be framed as: What are the

linkages, complementarities and connections between agricultural and non-farm employment and how are these shaped by spatially articulated links, institutions and arrangements?

The ancillary foci of the research include:

- The manner in which farm and non-farm linkages are shaped by the spatial arrangements of production, processing and marketing, along with the workings and governance of value chains or networks of production. This includes the spatial and institutional linkages between agriculture, non-farm activities and employment. Finally, what kinds of agricultural development – with reference to concepts such as scale, capital intensity and value chains – are needed to sustain and grow rural employment?
- The ways in which farm and non-farm linkages are patterned by social, institutional, political arrangements and relationships; in other words, how these dynamics structure 'real market' relations.
- The extent to which these dynamics are shaped by the nature, scale and capital intensity of agricultural development. For instance, do large-scale and small-scale farmers have differential impacts on non-farm employment?
- Finally, the poverty and employment impacts (including in relation to gender) of the different patterns of articulation of farm and non-farm economy and employment.

Understanding these issues demands careful empirical study of farm and non-farm linkages, including how these are affected by the nature of the institutional and spatial linkages.

Research methodology

In seeking to examine the relationship between farm and non-farm employment, the research required techniques for documenting and mapping these. Conventionally, a common way of examining the issue of economic linkages between activities and sectors typically relies on quantitative techniques, such as social accounting matrixes or exhaustive area-based surveys. However, this approach is ill-suited to discerning dynamics, and difficult to accomplish without recourse to reasonably accurate area-based economic statistics. For this reason, a combination of qualitative and quantitative methods of inquiry and analysis, were developed.

The research method entailed developing a system of area based, case study inquiry. The research sought to analytically 'capture' and document a number of existing production networks, in order to examine employment dynamics, spatial patterning and the socio-economic arrangements. In this task the focal object of analysis was the 'enterprise household unit' (EHU). The concept of EHU is significant, because it frames the unit of analysis as one beyond either the 'enterprise' or the 'household', each of which is typically subject to different kinds of inquiry, disciplines and theories. Along with understanding the focal case studies as economic actors embedded within larger market relationships and systems of production, this dual focus also allows for an examination of domestic consumption, the use of kin labour and the extensive arbitrage that frequently occurs between owner-operator enterprises and their households. Particularly within larger corporate entities with many employees, the 'household' component of the EHU recedes somewhat in significance.

The farmer-producers chosen were selected for their location within the focal research area but also because of their status as horticultural producers (specifically potato and cabbage). Focusing on

these two commodities facilitated comparisons between producers and between other country contexts (within the larger research project). At the South African (Weenen) site the farmer-producers engaged in the production of multiple commodities. Cabbage and potato production needs to be understood in terms of the entirety of the producers' larger farming operations.

Horticultural production is of analytic interest because it potentially represents what is amongst the most employment intensive and labour absorptive forms of agriculture. The National Development Plan, for instance, identifies horticulture (specifically vegetable) production as highly employment intensive, and with potential for employment creation (National Planning Commission 2013), whereas most other forms of commodity production (e.g. grain crops or rangeland animal production) have lower employment numbers, and are of lesser interest. This consideration also influenced the choice of the research site, a small town historically known to be a horticultural (vegetable) growing area. Finally, two cases of beef production were included in the research, in part because of the synergies with local horticultural production systems, and to facilitate comparison with other country contexts.

Each EHU case study examined was ordered into a sequence of linked narratives and case studies. This sequence saw a first set (viz. 'tier') of six core EHUs engaged in primary production agriculture presented – in effect, individual farmers/farming households and their enterprises. They were examined, both in terms of their respective enterprises and their larger networks.

The tier 1 case studies are 'indexical' in that subsequent case studies were developed in relation to them. Hence the focal tier 1 EHU case studies are used to trace the sequence of EHUs radiating 'outwards' along the value chain to the second, third and finally fourth tier. (The fourth tier is not explored in any detail, but is rather included to give a sense of to where the third tier links). Semi-structured interviews were conducted, and augmented with a questionnaire that sought to capture basic quantitative metrics related to production, inputs, outputs and employment. In addition, interviews sought to gain a sense of (particularly tier 1) enterprise and household-level consumption, expenditure and investments.

After the tier 1 EHUs, the research team followed up all significant sources of upstream inputs and downstream output markets. If these were within a 100km radius, the team, in most cases, visited the identified enterprises. The tier 2 EHUs therefore radiated outwards (in both functional and geographical terms) from the first tier. Each enterprise from tier 1 onwards had its GPS co-ordinates recorded, enabling each to be plotted cartographically. Although the EHU focus was retained, many of these subsequent (tier 2 onwards) enterprises were large enterprises with little discernible 'household' component. In general terms, the case study process followed a process of purposive sampling in order to map the network of linkages, capturing the spatial relationships between on-farm production, labour, input and output markets.

Examination of the next tier of linked enterprises, the tier 3 entities, followed the same sequence. However in several cases these enterprises were geographically outside of the (100km radius) research area, which also necessitated telephonic and archival (internet) based research. From the focal tier 1 EHU outwards, their inputs were examined in terms of five superordinate categories of expenditure, namely: fertilizer, agrochemicals and fuel, seed and seedlings, mechanical equipment and repairs. These were also applicable, to a large extent, to beef production, although beef-specific categories of veterinary products and young animals (typically 'weaners') were also explored.

A key focus, for the on-farm realm of tier 1 to the (usually) off-farm enterprises of tiers 2 and 3, was careful attention to issues of labour and employment. Widespread practices of seasonal and casual work necessitated that employee numbers be added up to 'full-time equivalents', to facilitate comparison.

Finally, and apart from the sequence of analysis described above, enterprises and economic activities within the town of Weenen were examined, specifically to understand the extent and functioning of its non-farm economy. A basic enterprise survey, participant observation and interviews were conducted with key informants (able to elucidate aspects of local governance and the business environment). This data was augmented with quantitative data, especially of income and employment, derived from analysis of Census 2011, in order to consider the size, scale and distribution of employment within the RNFE. The objective was to understand the local economy and labour market, dynamics surrounding the RNFE, and the RNFE's relationship to agriculture.

A note on scale of farming: 'large-scale' versus 'small-scale' farmers

The discussion that follows draws a distinction between large-scale and small-scale farmers. While the former category is marked by variations, it is generally a category that is widely understood. Not so the category of small-scale farmers (SSFs), which requires careful explication.

SSFs overlap into the widely used category of 'smallholder', even if neither term has a unanimously accepted meaning. 'Smallholders' are producers who farm at a scale that occupies the middle ground between subsistence farmers and exclusively market-orientated commercial producers. However, scale itself is an unreliable metric, because farm sizes vary markedly by the nature of the commodities, production systems and local agro-ecology. Smallholders are instead defined by a composite range of factors.

Developing a typology of SSFs, Cousins (2014) identifies several of the dimensions that serve to define 'smallholders'. These include the objective to which the producer is orientated, the proportion of their output retained for own household consumption (versus marketed), the extent to which they use kin rather than hired labour, the proportion that farm production contributes to aggregate household income, along with the extent of mechanisation, capital-intensive production methods and use of production finance. To this list might be added, in the South African context, their racial identity and historic class position, which Cousins (2014) does not explicitly include in this typology. In South Africa the term 'smallholders' (and 'small-scale farmer') almost unfailingly encodes reference to black African producers; while 'commercial farmers' are predominantly (although not exclusively) white producers. Note, too, that output markets are not a decisive criterion; even small-scale African farmers frequently market a proportion of their output (i.e. 'commercially').

Drawing on the above metrics, Cousins (2014) schematically distinguishes between four categories of 'smallholder'. They are (in ascending order of scale): firstly, subsistence-orientated smallholders; secondly, market-orientated smallholders in loose value chains (typically marketing less than half their output); thirdly, market-orientated smallholders in tight value chains; and, finally, 'small-scale capitalist farmers' who hire labour and market virtually all of their production.

The SSFs included in the present research, and discussed in what follows, uncomfortably straddle the second and third categories (viz. market-orientated smallholders in loose value chains, and market-orientated smallholders in tight value chains). They market more than half of their produce but are in loose value chains, but the nomenclature of 'smallholder', particularly with

its connotations of subsistence production, is eschewed in the discussion that follows. They are termed SSFs because they are not only of a small scale, they retain some of their own produce for household consumption, use hired and family labour, access varying levels of mechanisation, make comparatively little use of production finance and market the majority proportions of their produce commercially. These attributes distinguish the SSFs from the alternate category of 'large-scale farmers'.

'Large-scale farmers' are defined as in terms of the characteristics described above, and relative to production within the district – they are amongst the largest in the Weenen area. However by the crude metric of land size, their comparatively small landholdings (an average in the region of 200ha) are small relative to commercial horticultural producers in other regions.

3 The study site

The focal research site is described in detail below in order to 'locate' the empirical material and discussion that is subsequently presented. The Weenen area was chosen for a number of reasons. Firstly, it is a site where both comparatively large-scale and small-scale farmers are found, enabling examination of both categories of agriculture and its contribution to the RNFE. The dualistic nature of South African agriculture means that in many farming areas it is either large-scale, (viz. 'commercial') farmers or alternatively, SSFs that predominate. Both groups are seldom found in close proximity. Secondly, the focal Weenen research site has at its core a compact urban centre (a small town) amenable to a study of the local economy and the RNFE. Thirdly, the Weenen area is relatively close to the former KwaZulu 'homeland' communal area. This proximity to a former homeland – the bulwark of small-scale African producers – enabled the research to consider aspects of rural employment in relation to this kind of agriculture. Finally, the selected field site had been subject to previous research and aspects of it documented.

Weenen and its larger environs

Weenen is one of the twelve settlements and towns that constitute the Umtshezi municipality in the northern KwaZulu-Natal midlands, and second biggest town in the municipality after Estcourt. Estcourt (34km from Weenen) is the administrative and operational hub of the local municipality. The entire Umtshezi municipal area is, in turn, located within the larger UThukela district municipality. The Umtshezi municipality reportedly had a population of about 59 822 people in 13 965 households in 2008 (Isibuko se Africa 2008). The racial composition of its population was 83.7% black Africans, the other racial groups (white, coloured, Indian) constituted 16.28% of the population. More than a third of the population (37%) was between 15 and 34 years of age. With regards to Weenen's core town centre it had approximately 3 100 residents (the Weenen SP or 'small place' in the table below), the adjacent African township ('Ezitendeni SP') added to this number by approximately 3 700 people. The expansive uMtshezi NU unit below encompasses much of the surrounding countryside, stretching to just outside Estcourt (far beyond the boundaries of Weenen) and has the bulk of the population. However many of these individuals would have linkages (shopping, schooling, working, etc.) to Estcourt, rather than Weenen. (The precise spatial patterning of the settled core of Weenen is described in the following section).

Figure 1: Map of Umtshezi municipality



Table 1: Summary of area, population and population density for Weenen subplaces

	Area (km ²)	Population	Density (people/km ²)
uMtshezi NU	1 753.5	21 640.0	12.3
Impembeni SP	12.3	754.0	61.3
Weenen SP	72.0	3 127.0	43.4
Ezitendeni SP	3.8	3 704.0	967.5
Grand total	1 841.6	29 225.0	15.9

The table below gives a sense of the racial distribution within Weenen with no more than several hundred 'White' and 'Indian or Asian' residents, and a much larger (20 000+ individuals) African population.

Table 2: Racial distribution within Weenen

	Black African	Coloured	Indian/Asian	White	Other	Total
uMtshezi NU	21 072	12	60	491	5	21 640
Impembeni SP	752	0	1	1	0	754
Weenen SP	2 608	87	200	220	12	3 127
Ezitendeni SP	3 687	1	1	11	4	3 704
Grand total	28 119	100	262	723	21	29 225

With regards to the municipal data almost a third (27%) of the households in the municipality reportedly do not have a source of income: the municipality suggests that unemployment rate is estimated at approximately 33%. Census data reflects higher figures.

Within Weenen's town the (admittedly very narrow) definitions of employment put it at roughly 13% within 'Weenen SP' and 4% within the adjacent African township of Ezitendeni.

Table 3: Employment status (percentage of people) summarised for geographic units

	Employed	Unemployed	Discouraged work seeker	Other not economically active	Not applicable	Total
uMtshezi NU	9.6	7.7	11.9	26.1	44.7	100.0
Impembeni SP	4.2	1.7	15.8	28.5	49.8	100.0
Weenen SP	12.6	2.8	8.7	34.5	41.3	100.0
Ezitendeni SP	3.9	7.1	26.4	21.1	41.5	100.0
Grand total	9.1	6.9	13.5	26.5	44.0	100.0

Data cited by the municipality suggests education levels are relatively low: over half of the municipality's population have only primary education and 18.8% have no schooling at all. There are large numbers of unskilled adults in the area, with only about 10% of the total potential adult work force counted as 'skilled'.

With regards to the local economy, the trading sector accounts for the employment of 19.1% of the workforce within the municipality, while the agricultural sector reportedly only employs 2.4% of economically active population. This is a noteworthy figure. Although much land surrounding

Weenen is designated 'agricultural', and the town historically a farming centre, agriculture is, in aggregate terms, a very small employer. With regards to infrastructure, the Umtshezi municipality is endowed with a relatively good road network but minor roads, both in the high-density African townships and outlying rural areas are unpaved and difficult to traverse in inclement weather.

On the outer edge of the town of Estcourt is the N3 highway, a major transport corridor that links one of continent's busiest ports (Durban) to the industrial heartland of Gauteng on the plateau of South Africa's interior. Estcourt not only houses the municipal administration and an array of public services, but also retail outlets and service industries. The town has about eight major industrial producers. These include: the major processing plants for national brands, such as food processors Nestlé, Clover and Eskort Bacon; wood and board producer Masonite; and niche manufacturers, such as Narrowtex, Clover, Bunjy Toys and Glamosa Glass (Isibuko se Africa 2008). The corporate food processors source from the larger KZN region, but undertake little procurement from Weenen's farmers (with the possible exception of small quantities of chicory, described later). The large food processors, moreover, market to and service much larger markets. For instance, the Nestlé South Estcourt factory produces product lines (e.g. confectionary, hot beverages, and instant coffee, typically with packaging written in English, French and Portuguese) that are supplied to the domestic and larger regional (southern African) market.

As suggested above, agriculture is not a major economic activity or significant source of employment within Weenen and the local Umtshezi municipality. The municipality's Spatial Development Framework describes the municipality's land of marginal value for crops unless irrigated; although, by arid South African standards, the district has water potentially available for irrigation, with four large rivers flowing through it (Bushmans, Bloukrans, Sikhahlengla and Uthukela Rivers). The quality of agricultural land varies from 'good' to 'poor', with good agricultural land comprising about 43% of the available agricultural land. The balance (viz. 56%) is of low to poor potential (Isibuko se Africa 2008), dominated by thorn bushveld and erodible soils. This leads the municipal Spatial Development Framework to pronounce that for much land: '...in terms of economic land use, agriculture is not a suitable development option for economic development in the Municipality' (Isibuko se Africa 2008: 32).

Within the Umtshezi municipality, the Weenen district is known for its game reserves. Apart from the 5 000ha KZN Ezemvelo (Provincial) Nature Reserve, numerous private reserves were established from the 1970s on land owned by absentee white landowners (often on poor, valley bushveld farms). In the 1980s the 'Tugela biosphere reserve' was established, which, in its heyday, encompassed almost 100 000ha surrounding Weenen.

However the 'biosphere' failed to make the transition into the post-apartheid period, after landowners sold their land to the state for land reform. The new community reserves, owned by African claimant groups, suffered from the familiar challenges of collective management, such as large and diverse beneficiary groups and a dearth of post-settlement support. They also faced difficulties sustaining hospitality and professional hunting operations for domestic and international tourists. Moreover, the erection of fences and uncontrolled hunting of wildlife (by departing landowners and impoverished claimants) saw the remaining game farms wane and become fragmented. Considerably smaller and less profitable than the sector once was, fewer than half a dozen privately owned reserves that vary in size – generally ranging from 1 000 to 3 000ha – remain operational outside Weenen.

Conceptualising Weenen and its environs is difficult to do without brief reference to land reform. Post 1994, land reform has been undertaken in the district by the state, and land claims

are characterised by a large numbers of complex and overlapping labour tenant and restitution claims. By 2008, about 21 000ha had been redistributed through a land redistribution programme, about 14 934ha through land restitution and 7 000ha through a programme targeting former labour tenants. However the land redistributed ranges from having moderate to very low agricultural potential. The Umtshezi Housing Sector Plan and Data (authored by the KZN Regional Land Claims Commission) suggests that the bulk of both commercial and conservation land in the municipality is under restitution claim (including within the provincial Weenen Nature Reserve). By May 2008, the number of outstanding land restitution claims within the municipality was 38, of which twenty were located in Weenen and its environs (Isibuko se Africa 2008). Finally, the re-opening of the land claims process in 2013 is likely to increase the number of claims and uncertainty associated with land reform, as claims may well 'overlap' with each other and those already settled.

Weenen: A brief spatial description

The section that follows briefly describes the focal Weenen district in terms of its history and spatial aspects. The town of Weenen was established in 1838, and is the second oldest in KZN. Approximately 25km south of Weenen is the Tugela River that marks the border with former KwaZulu bantustan or communal area, which is historically marked by very different patterns of land use and governance to the formerly 'white' Weenen district.

Weenen with a total area of approximately 628 square kilometres reportedly has, by provincial standards, an extremely large surrounding agricultural area for a comparatively small town (Isibuko se Africa, 2008). This quality reflects its early agrarian history, and belies its otherwise small town centre. The larger Weenen townland can be divided into four main sections. The first section is the small main town centre containing some commercial and trading activities along with residential stands. It constitutes a discernible urban envelope (see Figure 2: Weenen SP, middle of largest central block). Inside the town some new infrastructural development (resurfaced roads, a taxi rank) is evident, alongside much older buildings and infrastructure; much of the latter is in a state of conspicuous disrepair. In common with many small country towns, the population of Weenen swells considerably when the denizens of the surrounding countryside travel to town during month end and social grant paydays.

The second discernible zone of larger 'Weenen' is the African township of KwaNobamba (or Ezitendeni), less than 3km to the east of the historic town centre (see Figure 2). In common with many South African township ethnic enclaves, KwaNobamba, with its high population density is out of sight from the formerly white town, and separated by a 'buffer zone' of agricultural land and hilly topography. In terms of its history, the township was at first a temporary resettlement site for displaced Africans evicted from the surrounding farms, following the 1969 abolition of labour tenancy. Incrementally upgraded over the years, it is a racially homogenous impoverished African township.

The third section of Weenen consists of an arc, extending from the north to the east and south, and includes the farms that surround the town centre and KwaNobamba/Ezitendeni Township. The Weenen Nature Reserve bounds it in the west (see Figure 3). Commercial farming in Weenen is predominantly concentrated in this zone, which is criss-crossed by the irrigation canals that, for a century, have been the lifeblood of Weenen agriculture.

Figure 2: Map showing Weenen and environs, overlaid with geographic units used in the 2011 census

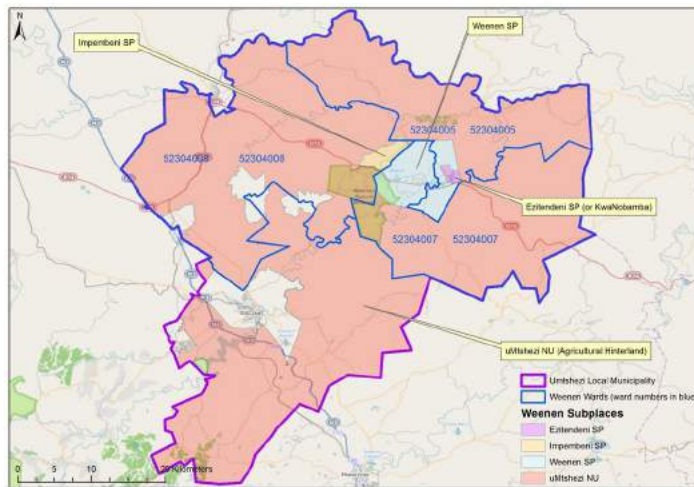
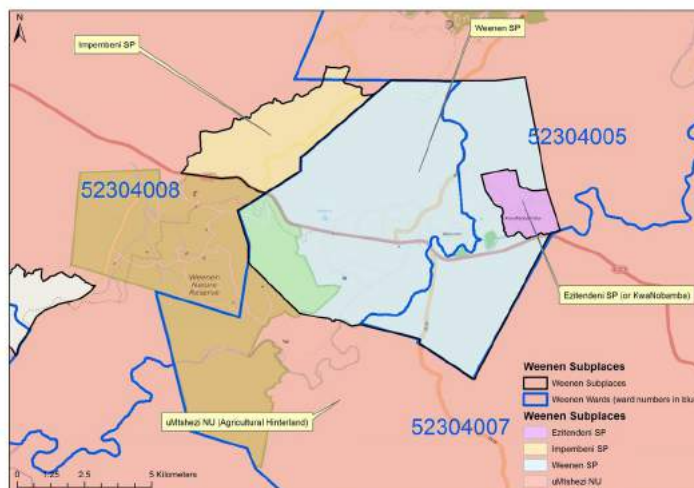


Figure 3: Detailed map showing Weenen and environs, overlaid with geographic units used in the 2011 census



The fourth and final zone in the Weenen district extends concentrically outwards from the town centre, and is constituted by extensive (i.e. the bulk) of the Weenen area. (On the map it extends into Impembeni and large portions of the agricultural hinterland marked Umtshezi). Much of this land is of limited agricultural potential, and better suited to extensive livestock farming and grazing. Some of this includes municipal commonage, much of which has been occupied by African households. This outer band is generally less well-supplied with infrastructure, but conventionally enumerated as part of the Weenen townlands.

The Umtshezi Municipality Spatial Development Framework (Isibuko se Africa, 2008: 28) candidly concedes that Weenen is a 'declining rural town' and describes a centre that has lost its traditional position and significance even as a secondary rural supply centre. Established with the irrigation canals in the late nineteenth century, Weenen was a prominent vegetable producing centre in the first half of the twentieth century. A post-war decline in its relative importance is intertwined with the advent of (mechanically) pumped irrigation elsewhere, especially in districts better positioned relative to large urban markets and a larger aggregate number of producers. Weenen's decline also reflects the historically small size of its farming units. In the last two decades there has been a

steady march of consolidation among commercial farmers, and their numbers halved to the current cohort of approximately 23 commercial farmers³. This has seen more marginal producers exit agriculture – a decline broadly consistent with the national picture. Finally, these dynamics have arguably been exacerbated by a land reform process that has often seen production disrupted on the farms transferred to African claimants.

The small urban centre of Weenen has a complex relationship to its more distant rural hinterland (i.e. beyond the immediately adjacent farming and township sites). Historically many white-owned farms on the border of the former Zululand (the Tugela River) were agriculturally marginal and owned by absentee white farmers. For much of the twentieth century the landowners recruited labour tenants from the farms, exacting farm-dwellers' labour in exchange for their continued residence. Tenants were typically transported to the landowners' active farming operations (often outside the district) for up to six months at a time. Widespread in the Weenen district, but uncommon nationally, this system of labour tenancy was (even by the racially oppressive standards of the day) regarded by many as particularly iniquitous and exploitative. These farms contributed substantially to the massive wave of displacement with the 1969 abolition of labour tenancy. It is an historical event that accounts for why so much of the land in the district is currently subject to restitution claims (Sato 2006; 2010).

The RNFE in Weenen

Surrounded by a combination of small and comparatively large-scale agricultural production, a few game reserves and scattered rural settlements, the urban centre of Weenen is a small and fading town. The Weenen town centre is laid out along two main axes of a small gridiron pattern, with perpendicular side streets. Inside the town economic activities include basic retail and services. With the exception of the newly constructed chicory agro-processing plant, agro-processing, natural resource extraction and manufacturing are altogether absent in the district.

With regards to the services sector, personal services are clearly evident. The local service sector of the RNFE consists of two or three storefront hair 'salons', and many more informal, roadside and home-based enterprises⁴. At least three dedicated premises are signposted as educare or crèche facilities. Domestic construction is dominated by self-provisioning and informal sector builders.

Formal sector services, including financial services, such as banks and other formal credit providers are remarkably absent in Weenen. This is partially impelled by the town's small size, its relative proximity to large centres and a nationwide wave of bank branch closures in rural towns. Banking facilities amount to ATMs (Automated Teller Machines) in the forecourt shop of the busier of Weenen's two fuel stations. Among the middle classes upward, internet or telephone banking is commonplace.

With regards to the retail component of the RNFE, store-based enterprises operate predominantly along the two parallel main streets that bisect the town centre. The town has a

³ This is a routinely cited number, but it is contingent on the precise criteria and scale used to define a commercial farmer.

⁴ Definitions of economic informality refer either to the characteristics of the enterprise (i.e. outside of the regulatory net of taxation and registration), or the employment relationships (i.e. informality associated with short-term, often insecure forms of employment). For the purposes of this text an enterprise-based definition of economic informality is used.

cohort of small-scale informal traders, but amongst the more formal store-based retailers three main groups of shopkeepers are discernible. The first group consists of long-resident 'Indian' (in South African racial nomenclature) Muslim families. The second consists of foreigners (overwhelmingly, Chinese, Bangladeshis and West Africans), mostly unaccompanied men who emigrated in the past decade. The third group is a smaller number of black South Africans: three or four family-owned shops. Finally the small-scale, informal sidewalk-type trade is dominated by African women.

The first group of local (viz. South African citizen) Muslim 'Indian' traders run a dozen stores mainly clustered on the southern of the two parallel main streets. They include general dealers (groceries, basic consumer durables and fresh produce), a hardware store and small clothes retailers. There is also a single (African owned) liquor store.

The second group – the foreign nationals – predominantly trade on the main street on the northerly edge of town. Fifteen enterprises are found there, among them at least one run by a black South African family and a shop run by a (South African) 'Indian'. The foreigners typically rent premises from established Muslim trader landlords.

Apart from the stores clustered on the twin main roads, along two shorter perpendicular streets are the largest two of Weenen's formal sector retailers. They include the sole Chinese-run, low-cost format 'supermarket' (a cavernous, dimly lit warehouse-like structure). The second retail store is Weenen's recently opened (2013) corporate-branded franchise supermarket, run by a white South African couple. The small but bright and modern store also houses a cashless ATM that disburses state social grant funded 'vouchers', redeemable at the store's tills.

Apart from the South African 'Indian' and the foreign traders, a third group of traders exists, including a small number of black South African storekeepers and a much larger cohort of informal traders (primarily black South African women), engaged in food retail. The informal traders are mostly clustered in the northern of the two main streets, in close proximity to the taxi rank. Even on a quiet mid-month day, at least a dozen of these vendors sell fruit and vegetables and prepare basic meals for their low-income black African clientele. The local taxi rank is the starting point for the minibus taxis vehicles that ply the route to the adjacent township, or towns further afield. However, the numbers of informal traders soar (at least tenfold), in response to the monthly social grant pay out.

The RNFE: Agro-food products and linkages

In seeking to understand the nature of the RNFE in Weenen, agro-food products are of particular interest because of their potential linkages to the surrounding farm production. In common with many small South African towns, Weenen's retailers almost exclusively sell dry goods, packaged and processed foods sourced from South Africa's corporate dominated food sector. Meat (much of it frozen chicken portions) is similarly sourced. The only locally produced and marketed comestibles are beef and seasonal fresh vegetables.

The fresh produce sold in Weenen shops and street vendors is procured from several sources, including vegetable growers (in season), and the local wholesaler and trader (Papadopoulos Trading). This enterprise, in turn, sources stock both locally and further afield, including via the City Deep Fresh Produce market in Johannesburg.

Within the three-day per month social grant payday period, market food products (including meat and prepared food) account for approximately 65% of the products sold in the market⁵. In season, vegetables sold in this market are sourced from local farmers, leading to a discernible monthly spike in farm-gate sales (around which local farmers plan). However, the precise nature, scale and form of the linkages between the monthly injection of state cash transfers and the local farming production are difficult to track in detail. It is also worth noting that much (easily the majority) of the fresh produce sold at the pension day market was sourced from external markets (viz. outside of the Weenen district). This is evident in the commodities, such as bananas sourced from Mozambique; tomatoes from South Africa's largest producer ZZ2, and deciduous fruit from Western Cape agribusinesses. Even 'in season' locally produced horticultural products effectively compete with wares produced far outside of the district and distributed by the larger agro-food system.

The RNFE and the public sector

In terms of state employees, public facilities within Weenen include a large day clinic (health facility), local offices for the Department of Social Development (and South African Social Security Agency) and a large, refurbished police station (approximately 60 offices in shifts).

Municipal amenities are modest, and include a small, two-person satellite office, a small public library and a dusty, unstaffed local history museum. While the municipality retains a small local storage yard, many services, including refuse removal trucks, are dispatched from Estcourt. The larger Uthukela district municipality maintains a small office (approximately five employees) for water-related enquiries and payments. The well-built, modern building that previously housed the post office is vacant, having shrunk to a three-person postal agency in a shared building.

Education is a major source of activity and employment locally. There are at least six primary schools and two secondary schools in Weenen. Large numbers of African learners from low-income communities are enrolled in these designated 'no-fee' schools (i.e. learners are from impoverished families). Public schools employ approximately 75 staff (mostly teachers). In addition, Weenen also has two private primary schools; one with a reportedly strongly Christian ethos and larger numbers of middle class and white pupils, and another is a madrasa (Islamic school). Combined, these private schools employ approximately 14 staff. The children of middle class parents frequently attended these schools, or alternatively are schooled outside of the town, in adjacent centres.

Weenen's RNFE and spatial dynamics

Although Weenen can be regarded as a somewhat isolated rural town located off the major arterial routes, it is simultaneously highly connected through commercial and transport links. For instance, Weenen is characterised by a steady stream of road traffic. Vehicle numbers were enumerated along the two main paved road routes into town on a regular midweek working day. (There are also two unpaved roads into Weenen, so the documented frequency is likely to be a conservative count.)

⁵ Extrapolated from a sample of the vendors

Three vehicle classification categories were used – private, mass-passenger and commercial (load carrying)⁶. Between 7h00 and 18h30 305 private, 238 mass-passenger and 315 commercial vehicles entered the town. Although concentrated in the early morning and late afternoon traffic peaks, this averages out at 29 private, 23 mass-passenger and 30 commercial vehicles entering town per hour (or the regularity of approximately a vehicle per minute). Exiting the town were 287 private, 236 mass-passenger and 364 commercial vehicles (an average of about 27 private, 23 mass-passenger, and 35 commercial vehicles per hour). The sharp early morning and late afternoon peaks suggest not just the cadences of the working day, but residents commuting to adjacent towns. (Assuming single-occupant vehicles – most were not – this amounts to 10% of all Weenen residents).

Finally, at this point a note on terminology used to describe the district is required. In the subsequent discussion the 'Weenen district' refers to the town and its immediate environs (the farmland encompassed in the town's historic boundaries). The reordering and extension of local municipalities in the 1990s saw diminutive Weenen absorbed into Umtshezi local municipality, with its administrative, employment and commercial links to Estcourt. The Umtshezi local municipality is, in turn, located with the UThukela district municipality, an administrative unit that coincides with popular conceptions of the 'region', and includes the urban centres of Estcourt, Ladysmith, Winterton and adjacent rural areas. However, local parlance sees 'region' used to refer more expansively, and imprecisely, to the northern midlands of KZN, beyond the district municipality's boundaries.

Research approach

Before presenting the empirical material, details of the research approach and an orientating description of the focal commodities (horticulture and beef production) are discussed. The research approach is embedded within the larger research methodology delineated earlier, but how precisely it was operationalised is discussed here.

The empirical material begins with the six focal case studies of the first tier farmer-producer EHUs. These six case studies include both smaller- and larger- scale farmers, and the basic quantitative data described in the case studies is contained in Appendix 1. Following the presentation of the six case studies, their production networks and linkages are described, using a successive set of case studies. These are, firstly, the upstream (input) supply networks, followed by the downstream (output) marketing networks. For both upstream and downstream networks, the enterprise or intermediary with which the focal tier 1 farmer directly transacts is designated tier 2. The enterprise with which the tier 2 intermediary/supplier interacts (i.e. two steps removed from the tier 1 informant) is tier 3.

The designation of the tiers 2 and 3 is therefore not absolute but *relative* to the tier 1 informant. For example, larger-scale farmers transacted with tier 2 Pannar Seed directly, but smaller-scale farmers used an intermediate entity (viz. tier 2) to access Pannar's products. Pannar is, therefore, a tier 2 entity to some, but a tier 3 entity to others. To avoid duplication, the enterprise is listed under the tier at which it first emerges in the production network (i.e. tier 2 in the case of

⁶ The first category was private cars and less utilitarian pickup trucks; the second category was passenger vehicles carrying mass, often fare-paying, passengers (e.g. buses, minibus taxis, pickup trucks transporting passengers in their load bed); the third category was commercial load-carrying vehicles (trucks, tankers and tractors, and load-carrying pickup trucks).

Pannar Seed). In light of the relatively concentrated nature of input supply networks many suppliers are accessed by multiple, and in some cases all, tier 1 farmers.

The designation of EHUs relative to the indexical tier 1 case studies means that even EHUs or entities that might otherwise appear indistinguishable from the tier 1 farmer-producers (such as Ethu farm) are, relative to the cases presented here, tier 2 entities. In the case of Ethu farm, it is a tier 2 supplier of inputs (weaners/young cattle) to a tier 1 EHU. In much the same way, the primary production Umbumbano Co-op is a tier 2 entity, due to its place in the production networks, and relative to the focal case studies.

Furthermore, it is useful to stress that the listed upstream input suppliers are locally prominent and accessible enterprises, in terms of the research methodology's follow-up criteria (within 100km radius of Weenen), and, therefore, were interviewed directly. However, while these are the dominant suppliers, they are not exclusive suppliers of inputs. Some less frequently used suppliers may exist, but are distant or inaccessible. Within the discussion of the tier 2 and 3 enterprises, precisely which of the tier 1 case studies links to them is explicitly indicated.

The case studies presented are focused on horticultural and beef commodity production. Not only does intensive horticultural production offer an example of a production system with high potential for on-farm employment, this quality is magnified in a locale such as Weenen, where comparatively small landholdings limit the scope for mechanisation and commensurately maximising the reliance on labour. The small size of the town and geographically circumscribed nature of the farming district more readily facilitate a tracing of the inputs and output markets and an examination of the synergies between agricultural production, employment and the RNFE, which is the core focus of this inquiry.

Within Weenen virtually every commercial producer grows both potatoes and cabbages, with most growing additional, different horticultural crops. There are also a number of general similarities between producers, including, as indicated, modest levels of mechanisation and use of manual labour (particularly planting seedlings and harvesting). The two groups of (tier 1) farmer-producer are: larger-scale farmers (mostly, but not homogeneously, white) and small-scale African farmers, who engage in production, but at a small scale (typically under 5ha), with regular use of kin labour and little reliance on production capital.

The case studies presented below are, first, those of tier 1 horticulture and beef farmers. Following this, input supply networks are traced and discussed, through their successive sets of linkages (their second and third tiers). Some of these are common for horticulture and beef production (e.g. fuel, mechanical equipment, seed, fertilizer and agrochemicals for feed production). However, beef production has specific and distinctive additional inputs (e.g. veterinary products and young animals), which are discussed as such. Although it is horticulture that predominates amongst the focal tier 1 farmers, beef production is often included in mixed horticulture and livestock production systems. Finally, the delineation of upstream inputs (output or marketing networks) is discussed. As the latter category is relatively distinct for horticultural and beef production (unlike input networks), it is disaggregated according to the two commodities.

4 Presenting the case studies

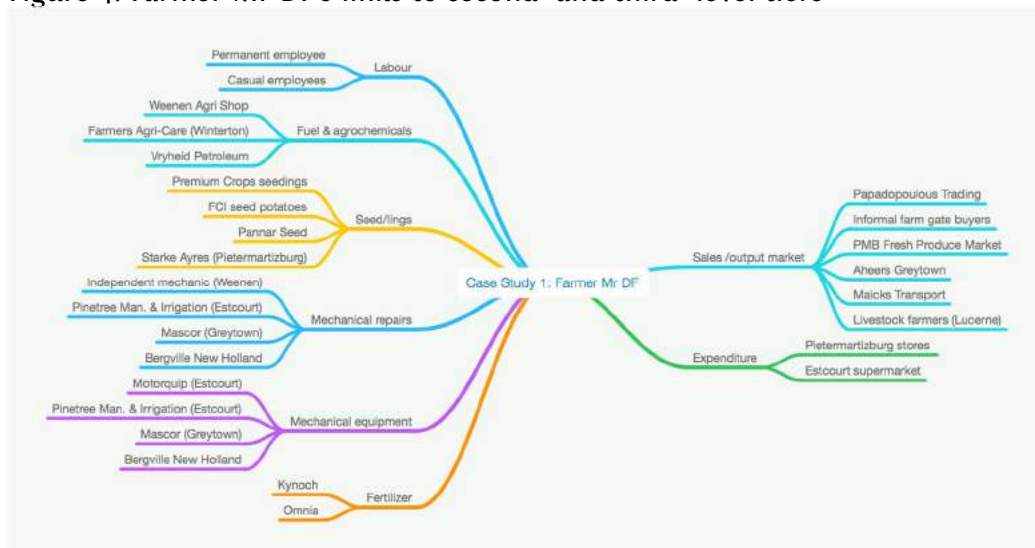
The case studies are presented in detail in the section that follows, through the successive first, second and third level tiers. This empirical material is presented here, but then extensively referred to in much of the substantive discussion presented in the second half of the report.

An overview of primary producers (Tier 1)

Case study 1: Mr DF (large-scale farmer) (Tier 1)

Mr DF is a 46-year-old white male commercial vegetable farmer, with 60ha under intense irrigated cultivation. With a formal qualification in agriculture, he married into a local farming family. His wife is employed part time (off farm) and they have two teenage children. He worked as farm manager for a decade before purchasing the farm. Mr DF cultivates cabbages, dry beans, potatoes and maize in roughly equal proportions (along with much smaller quantities of groundnuts, butternuts and lucerne – single digit hectares planted). Two plantings a year, generally in 10ha blocks, are undertaken. In the last season, potatoes yielded 600 tons (earning R520 000) and cabbage 900 tons (R640 000)⁷. Mr DF is, therefore, a successful commercial farmer with a solidly upper middle class lifestyle, but he runs his operations with a keen eye for economy (e.g. keeping old farm machinery running; rebuilding his own shed; exhibiting very hands-on management). He had expanded the original farm by buying adjacent land in the past, but is reluctant to further invest in immovable property, reportedly due to the uncertainty associated with land reform.

Figure 4: Farmer Mr DF's links to second- and third- level tiers



His markets are varied. Key buyers of his cabbages are the informal farm-gate markets (African 'bakkie traders') that purchase 80% of the crop, with the balance sold via Papadopoulos

⁷ See Appendix 2 for the computations. All sums quoted are inclusive of direct input costs and labour, but represent earnings before interest, taxes, depreciation, amortisation or capital expenditure.

Trading. Small cabbages are occasionally sold in bulk bags at the Pietermaritzburg Fresh Produce Market, 130km away. In contrast, the bulk of the potato harvest (90%) is sold via the fresh produce markets (FPMs) and a smaller proportion to local buyers (and typically hauled by transport contractors). Significantly, he is one of a shrinking group of producers who sell unwashed potatoes. Other commodities, such as dry beans are predominantly sold to independent supermarket chain, Aheers in Greytown, and lucerne is sold to livestock farmers – both locally and from outside the district.

With regard to farming inputs, Mr DF sources seedlings from Premium Crops, seed potatoes from FCI, and dry bean lucerne and maize directly from Pannar Seed (Greytown). Fertilizer is bought directly from producers (Kynoch or Omnia) and agrochemicals from Farmers Agri-Care (FAC) Winterton, 70km away (an hour's drive). Diesel is delivered by Vryheid Petroleum, and Mr DF patronises the local shop Weenen Agri for small purchases, hardware consumables, protective equipment, packaging materials, etc. Irrigation equipment is sourced from Pinetree Manufacturing and Irrigation (Estcourt); and farm equipment and vehicles from Mascor (Toyota, General Motors) in Greytown and New Holland in Bergville. Mechanical repairs and maintenance involve either the workshops of these enterprises, or (for older equipment) independent mechanics within Weenen.

Mr DF presents a picture of a successful, solidly upper middle class white commercial farmer, with late-model vehicles, ownership of urban property and plans for his children's university education at distant urban centres. As his wife commutes through to Estcourt daily, the household does much of its grocery shopping there, or from Pietermaritzburg supermarkets. With the exception of purchases from the local Weenen Agri supply store and payment of wages, virtually all of their consumption and investment expenditure is outside of the Weenen area.

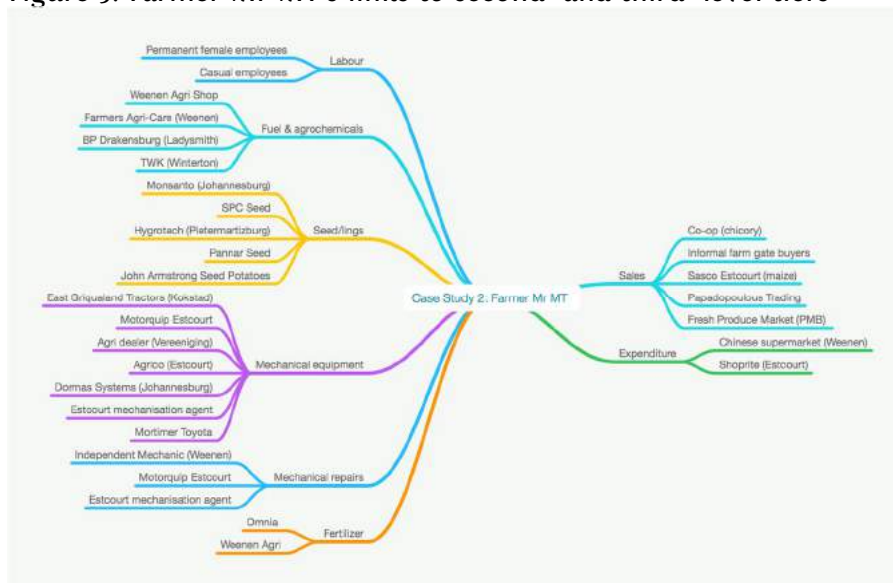
Labour and employment

Mr DF employs a core of five to ten 'permanent' multi-skilled employees, many of whom rotate among various tasks, including mechanical harvesting, irrigation, weeding (mostly spraying) and general maintenance (e.g. fences, roads, earthworks). They are augmented with casual and seasonal workers (especially to plant cabbage seedlings and harvest potatoes). Planting requires 30 'casual' female workers; and potato 'lifting', requires a total of 60 workers (i.e. 50 casuals in addition to the core staff), evenly divided between field- and shed-based (packing) workers. Mr DF pays wages fortnightly, reportedly at the minimum wage (2012) of R11.63 per hour. During harvesting, workers receive small quantities of in-kind produce. In the last season of 2012, a total of 4 399 person days of employment were created across all commodities (approximately 500 permanent, 3 649 casual and 250 kin). At an average of 18.3 workers per day (240 working days per year), he employs 0.3 people per hectare.

Case study 2: Mr MT (large-scale farmer) (Tier 1)

Mr MT is an unmarried African man in his 30s, running a commercial farm owned by his Johannesburg-based family. The farm was privately purchased under a decade ago from its former white owner. The 285ha farm has about 35ha under centre pivot irrigation, with cattle and goats grazing on the rest of the land. Mr MT's father is a manager in a large agribusiness in Johannesburg and does much of the planning, procurement and financial management from a distance, visiting only occasionally. Formally agriculture-trained Mr MT manages the farm. Mr MT's four adult siblings and his mother (a teacher), all work in Johannesburg. However, the farm is a productive rather than 'lifestyle' asset; the family has no previous link to the area, nor do Mr MT's siblings visit; nor do they aspire to become involved in the farm.

Figure 5: Farmer Mr MT's links to second- and third- level tiers



The main crops produced are potatoes, maize (dry and green), cabbages and butternuts. In 2012 smaller plantings and setbacks (irrigation equipment failure) made for lower yields, with 350 tons cabbages valued at approximately R195 000 and 300 tons potatoes (earning R180 000)⁸ produced. Common planting increments are blocks of up to 10ha, in addition to which 45 beef cattle and 73 goats are reared on the farm. The farm is well capitalised, with good quality infrastructure, new tractors and bakkies. Unlike many horticultural producers Mr MT has an eight ton truck and occasionally collects lucerne or delivers produce to markets, rather than relying on buyers' transport or the hiring of contractors. While private African ownership of a large farm is unusual in the area, their farming operations are indistinguishable in style from others in the district. Apart from a Land Bank loan, the family are reportedly not beneficiaries of any state funding or state recapitalisation initiatives, etc.

Output markets see maize generally sold to the bulk trade (typically the depot of large miller Sasco, in Estcourt), but butternuts and green maize are sold directly off farm to the informal bakkie trade. Some cabbages are sold off farm too, but the bulk of them are distributed via local wholesaler Papadopoulos Trading, mostly to supermarkets and fruit-and-vegetable shops in the larger region. Mr MT readily identified Papadopoulos Trading as a key intermediary in accessing non-farm-gate buyers.

Approximately 200ha of the 285ha farm is potentially usable for grazing by goats and cattle. Much as the farm is reportedly viewed entirely as a productive (rather than lifestyle) asset, the 45 head of cattle (the number in 2012) are similarly viewed. Mr MT's father reportedly buys and sells cattle freely, and on pragmatic financial terms. They are not used for customary or 'loan' purposes. Nor are they milked, used for animal traction, etc.

Inputs for the farming operations include cabbage seedlings sourced from SPC (outside Greytown), butternut from Hygrotech (Pietermaritzburg), maize seed from Pannar (Greytown) and also, rarer in the district, Monsanto (Johannesburg). Large quantities of fertilizer (a truckload of 36 tons at a time) are sourced from Omnia Sasolburg, but smaller quantities (a ton

⁸ See Appendix 2. Earnings are inclusive of labour and direct input costs but exclude interest, taxes, depreciation, amortisation and capital expenditure.

or two) or other smaller quantities of inputs are obtained from the Weenen Agri store. Diesel is delivered directly by the BP agent in Ladysmith and agrochemicals purchased from FAC in Weenen (a depot independent from but physically within the Papadopoulos Trading premises). Tractors (large, recent models) are purchased from second-hand dealers (Kokstad, Vereeniging) and most spare parts and consumables from Estcourt. Inputs for beef production include forage and lucerne seed from Pannar. Veterinary preparations are sourced from Weenen Agri shop (dips, etc.) and a veterinary practice in Estcourt. A major source (and sometimes buyer) of cattle is Ethu farm, outside Estcourt. Single animals or small numbers of animals are also sold to African buyers, likely for the 'customary' market.

Labour and employment

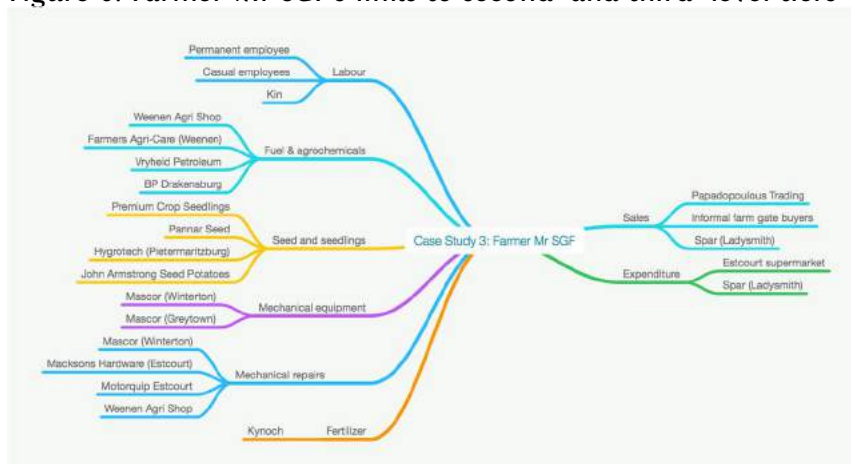
Mr MT manages the farm and its workers, but is aided by his salaried cousin who also oversees the livestock. (The farm has sound fences and camps, precluding the need for a full-time cattle herder). Mr MT employs a total of seven permanent employees, and approximately 13 intermittent casual employees for weeding – mostly residents of Weenen's African township. Mr MT expressed a clear preference for female workers (even for jobs traditionally regarded as 'male's'), because of his reported difficulties in working with African men, who apparently challenge his authority. The labour-intensive potato harvest requires a total of 60 employees, and often sees Mr MT struggling to recruit sufficient workers. He is, therefore, compelled to employ school children during the holiday season. The farm has three farm-dweller households, with approximately twelve to fifteen residents but none of their members are employed on the farm. It is unclear why, but these 'legacy' households include several elderly former employees of the previous owner and Mr MT is disinclined to employ men. With an average of fourteen workers per day (240 working days) and 35ha under cultivation, he employs 0.4 people per hectare.

Case study 3: Mr SGF (large-scale farmer) (Tier 1)

Mr SGF is a married man in his 40s and one of five adult sibling co-owners of two interlinked enterprises. The first is the family's mixed horticulture and cattle farming operation, the second a fruit-and-vegetable retail, wholesale and market agent type enterprise. The Weenen farmland comprises of 100ha (consolidated from smaller blocks over the years), amounting to 70ha of irrigated cropland and 30ha of bushveld grazing camps. The irrigated land is intensively cultivated (2 plantings per year): potatoes, cabbages and sweet potatoes are (in order) the most important outputs, followed by beef, cattle (approximately 50 head at a time) and other vegetables (beetroots, green peppers, butternuts and eggplants). Yields are high and plantings comparatively extensive (around 20ha). Cabbage earnings amounted to approximately R540 000 and potato earnings R1.35 million in 2012⁹. Approximately 50 head of cattle at any time contribute a fraction of the income, compared with their major horticultural production. The cattle graze on crop stover (harvested maize stalks, etc.), potato culls and (unusually) cabbage residue (outside leaves, etc.). An average year might see ten to fifteen head of cattle sold to intermittent cattle buyers, including the African (traditional) buyers and cattle traders. Cattle are also sent to auction, including Vleissentraal auctions in Winterton.

⁹ Inclusive of labour and direct input costs but excluding interest, taxes, depreciation, amortisation and capital expenditure.

Figure 6: Farmer Mr SGF's links to second- and third- level tiers



The father of the five adult siblings was an illiterate first-generation European immigrant who purchased the core of the current farm in the 1970s. Comparatively poor, labour-constrained and socially marginalised within local white farming society, the family's farming operations were precarious for the first two decades. The siblings slowly grew the enterprise, and their father retired. Their operations are distinctive for both the relatively large number of kin involved and the fact that they own an enterprise through which they market their produce. The wholesale enterprise has grown since its inception over a decade ago, with their own produce now contributing less than 15% of its turnover (the precise figure is unobtainable, but high volumes make for a turnover of tens of millions of rands).

Two brothers are directly involved in farming operations. One undertakes tasks such as building, maintenance and mechanical repairs and liaising with outsiders; the second is responsible for most aspects of cultivation, tending and trading livestock and the hiring and supervision of employees. The brother's unmarried sisters do much of the administrative and bookkeeping work. The family are successful middle class white commercial farmers, notable for the extent of their direct hands-on involvement and innovation (e.g. imported watermills, experiments with low-input 'natuurboedery'¹⁰) and their general ethos of frugality. They 'in-source' many tasks that employees or contractors might otherwise undertake, such as repairs and maintenance, bookkeeping, tractor driving, cattle herding and marketing, etc.

Inputs are sourced from the conventional suppliers, such as Pannar Seed (pasturage), Premium Crops (vegetables seedlings), John Armstrong Seed Potatoes and, occasionally, Hygrotech (seedlings). Agrochemicals are purchased from FAC, fuel is delivered by Vryheid Petroleum and BP Drakensburg, fertilizer from Kynoch and independent transport contractors are hired to haul their produce (the family disposed of their own trucks). Cattle buyers supply their own transport, with most veterinary supplies sourced from a large veterinary practice in Estcourt. Small hardware and consumable items are purchased from Weenen Agri. Non-agricultural expenditure is primarily in supermarkets and stores in Ladysmith (to which the family has historical links, and regularly travel). The family is also noteworthy for their high levels of reinvestment in the enterprise – notably the purchasing of land, despite the general reluctance of many other white farmers to purchase land in the district, due to the uncertainties associated with land reform. Finally, the family has fewer of the trappings of affluent commercial farmers,

¹⁰ Afrikaans: literally 'nature farming', low input ecologically sensitive-farming.

such as (not uncommon) urban property, holiday homes or overseas return travel (often prioritised by immigrants).

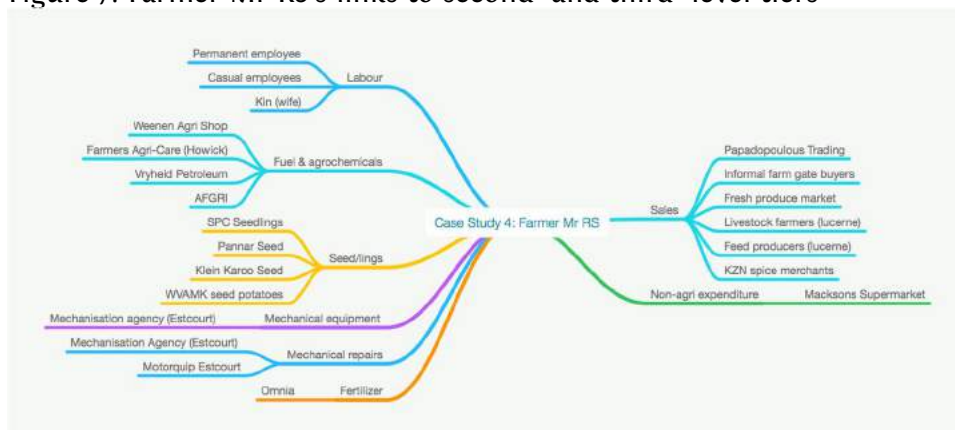
Labour and employment

The two enterprises combined employ approximately fifteen (up to twenty) ‘casual’ workers daily: the majority of these (at least two-thirds) are involved in farming operations, but workers are transferred between tasks and enterprises as necessary. These workers are drawn from a larger pool of approximately 40 workers, and are summoned when needed. Only two or three individuals are considered ‘permanent’ employees¹¹. Short-term seasonal employment demands, especially for the labour-intensive potato harvest, see the employee numbers expand two to threefold. In 2012, 4 410 person days of employment were created (approximately 610 permanent person days and 3 800 ‘casual’ days¹²) across all commodities and in both enterprises. At approximately 18.37 workers per day, across 240 working days and 70ha, they employ 0.26 people per hectare.

Case study 4: Mr RS (large-scale farmer) (Tier 1)

Mr RS is a white commercial farmer in his early 40s, married with two young children. He has occupied his current farm for roughly twenty years, first as employee, then farm manager and, in the last five years, as a lessee. The farm is 200ha in extent, with 100ha under irrigation. It has well-developed infrastructure, including large sheds, three centre pivot irrigation units, four dryers and a recently acquired grinding mill. Mr RS runs a mixed horticultural production system. His crops (in order of importance) are potatoes (500 tons), chillies (variable quantities, green and powdered) and cabbages (150 tons), followed by beans, maize (dry and green) and lucerne. Although seemingly well-capitalised with new farm machinery etc., Mr RS is unable to reinvest in the rented land. Instead he has invested in an array of financial products and property in a distant city.

Figure 7: Farmer Mr RS’s links to second- and third- level tiers



In terms of output markets, potatoes are sold mostly via the local wholesaler Papadopoulos Trading and the national fresh produce markets (FPMs) in Pietermaritzburg and Durban. Lower grade potatoes are usually sold to informal farm-gate bakkie traders (transport costs make sending them to FPMs uneconomic). Cabbages are sold to the bakkie buyers and Papadopoulos Trading, although prices are volatile and contingent on local supply and demand. Potato and

¹¹ As suggested later, the precise distinction between ‘permanent’ and ‘casual’ is often, in practice, blurred amongst many employees.

cabbage prices were comparatively depressed in 2013; however, cabbage yielded earnings¹³ of over R300 000 and potatoes R650 000. Chilli is an important crop for Mr RS, sold both green (typically via FPMs) and dried in the farm's coal-fired dryers, ground into powder and sold to independent spice merchants throughout KZN. Chilli is important for its flexibility: depressed prices for fresh chillies see them dried and ground into higher-value (and with longer shelf life) chilli powder. Mr RS cultivates maize as a rotation crop, favouring it for its stable prices and its ease of production. In the preceding season he sold the entire 270 ton harvest directly off farm (i.e. not to the bulk trade). Mr RS cultivates lucerne, a good hedge against the risk of hail or theft, and sold 70% in bales to livestock farmers and the balance to a feed manufacturer in Pietermaritzburg.

Input sourcing sees fertilizer bought directly from Omnia, seed from Pannar Seed, horticultural seedlings from SPC, seed potatoes from WVAMK and lucerne seed from Klein Karoo Seed Producers. Pesticides and other agrochemicals are sourced from FAC (Howick) or, occasionally, AFGRI or Weenen Agri, diesel is delivered by Vryheid Petroleum (from Ladysmith) and haulage is provided by an Estcourt transport contractor (recently defunct). Mechanical equipment is predominantly bought from an Estcourt mechanisation agency, along with spare parts. Consumables, small hardware items etc. are procured from the local Weenen Agri shop. Mr RS's wife commutes with their children to Estcourt daily, so supermarkets within Estcourt are, therefore, key sites for non-agricultural household expenditure.

Labour and employment

Mr RS has sixteen permanent employees, whom he employs throughout the year (half worked for the full year, the others for ten months of the year). Mr RS favours employing a stable core of regular workers in the interests of continuity and administrative ease. He also employs six to seven security guards, in shifts, at peak times to protect crops from theft (his crops are particularly vulnerable, due to his proximity to Weenen's urban edge), and machine minders to oversee the dryers when they operate around the clock. A significant spike in labour demand comes during potato harvesting, when the influx of 'casual' workers raises employee numbers to 100 for several weeks. Mr RS recently hired a farm manager, while Mr RS's wife maintains the farm accounts. In response to the 2013 hike in the minimum wage, existing labour management practices were intensified. Workers are nominally employed for a six-hour workday, but effectively on a piecework schedule of remuneration. Many workers have a minimum threshold for individual production, concluding their workday once they attain it (i.e. before or after six hours). A small number of faster workers reportedly finish their quota by lunchtime, and then complete a second quota, doubling their pay. These practices contrast strongly with those in the past: two decades ago 250 labourers were recruited at weekly wages from the adjacent homeland and housed in single sex compounds, all overseen by five managers.

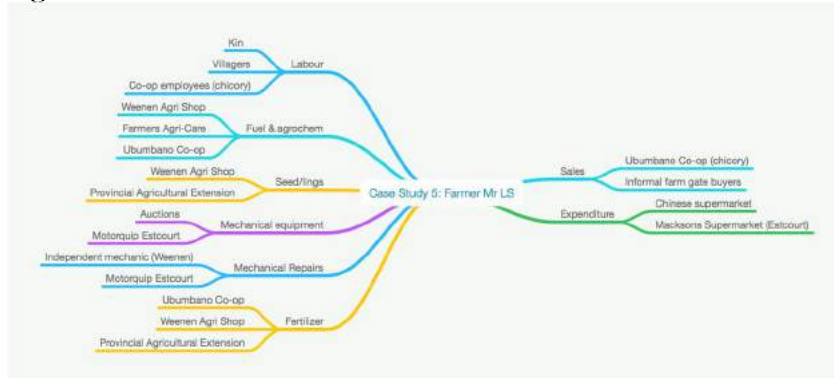
Case study 5: Mr LS (small-scale farmer) (Tier 1)

Mr LS is a late-to-middle-aged African small-scale farmer (SSF), intensively cultivating his own 4.5ha of well-located land on the edge of the town of Weenen. In addition, he rents 2–3ha of adjacent land. He has a history of formal sector urban employment, and after returning to Weenen in the 1990s bought the land, where he lives in an old caravan during the week. He has two wives (customary polygamous marriage), fifteen children and about 30 grandchildren. His wives and most of the family reside in a village 15km outside Weenen, to which Mr LS returns on

¹³ Earnings net of direct input and labour costs, but excluding interest, taxes, depreciation, amortisation, capital expenditure and rent.

weekends. In addition to his land, Mr LS owns a battered bakkie, an old tractor and various implements. Mr LS is by no means affluent, but generally earns over R100 000 a year; however much of the large household's income is spent on groceries and food. He cultivates the fertile canal-watered land (two crops per year) and sells milk from his cattle daily.

Figure 8: Farmer Mr LS's links to second- and third- level tiers



Mr LS has a mixed herd of 42 cattle that predominantly graze on municipal commonage and alongside the local rivers and road verges. His annual horticultural production includes (in order of importance) potatoes (90 tons), cabbages (130 tons), butternuts (20 tons), green maize, and variable quantities of carrots, brinjals (aubergines), chillies, beetroots, peas, beans, tomatoes, onions, spinach and groundnuts. All the milk and much of the horticultural production is sold informally through farm-gate sales. Mr LS also devotes a part of his land to chicory production (a coffee substitute), as a member of a local donor-funded co-operative. Chicory inputs and sales are contractually arranged through the co-op.

Mr LS purchases some seed, seedlings, diesel and fertilizer from the local Weenen Agri supply store. Agrochemicals are predominantly sourced from FAC (depot at Papadopoulos Trading), while inputs for the specialist chicory crop are entirely supplied by the co-op. Moreover, the state (provincial agricultural extension officers) also intermittently provides inputs (vegetable seedlings, fertilizer, etc.). Groundnut seed is retained for replanting the next season. Mr LS mainly purchases equipment and implements at local auctions, while tractor parts and consumables are sourced from Motoquip spares in Estcourt. Much of his large household's consumption expenditure is local (from Weenen's Chinese-run supermarket), and the occasional (post-social grant pay out) monthly shopping trip to the large supermarkets in Estcourt. Large numbers of children receive the child-support grant and this money contributes to food and schooling-related expenses.

Labour and employment

Mr LS has three main sources of labour. He draws significantly on family labour (especially his unmarried older daughters, daughters-in-law, and two wives), in addition to hiring employees from his village 15km away (i.e. not from Weenen). Finally, he uses a group of labourers occasionally provided by the co-op for chicory-related tasks. Mr LS's paid employees and unremunerated wives tend to do the more difficult work; unremunerated kin (daughters, etc.) undertake lighter work, but are paid for drudgery-intensive tasks.

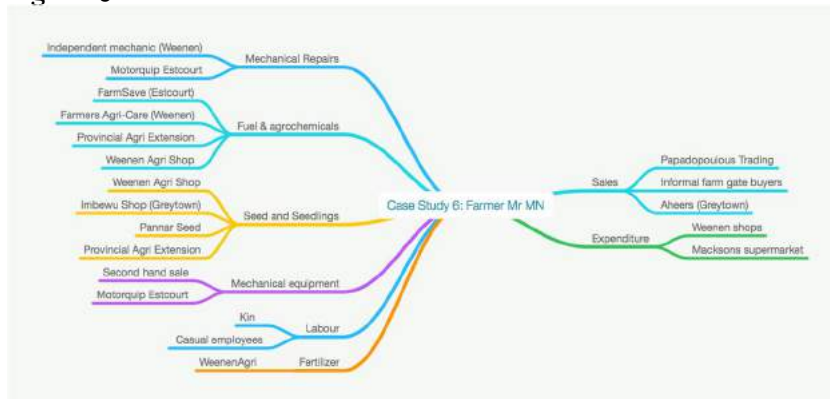
Case study 6: Mr MN (small-scale farmer) (Tier 1)

Mr MN is a 60-year-old African man cultivating approximately 2–4ha of land on a defunct land reform farm in the Weenen district. With a history of formal sector employment, Mr MN returned to the district from Gauteng in the late 1990s. The original zoha farm was purchased

from its white owner by the state as a ‘flagship’ land redistribution project (2003). Mr MN and his two wives were amongst the original project beneficiaries. When the project failed and the farm fell out of production, Mr MN assumed de facto control of it. With their homestead in a village 10km away, a family member occupies the farmhouse during the week. They cultivate potatoes, spinach, groundnuts and occasionally maize or tomatoes. Mr MN also runs a herd of a dozen cattle, and they rear 100 chickens at a time in a large chicken shed.

Mr MN is noticeably capital constrained, with little equipment, other than hand tools and an old, unreliable bakkie. Furthermore, perhaps because of Mr MN’s unclear and informal tenure arrangements, he is relatively reticent and guarded. However, he successfully retains control of the farm: he invited temporary (white) tenants, in order to secure the farmhouse (preventing theft and vandalism) and small black cultivators to synergistically aid his own farming operations.

Figure 9: Farmer Mr MN’s links to second- and third- level tiers



Maize seed is purchased from Pannar Seed via a small agricultural input store in Greytown, but some seed (and tomato seedlings) are provided for free by the Department of Agriculture. Mr MN sources fertilizer from the local Weenen Agri shop and pesticides from FarmSave in Estcourt. Mr MN attributes his underutilisation of the farm to his lack of capital, so secures inputs by allocating land. For instance, he allocated zha to a tractor owner in return for ploughing services, and half a hectare to a local teacher in return for the promise of transport of his crop to market. (This appeared a relatively uncommon practice, perhaps because chronically undercapitalised farmers are seldom able to preside over large farms for several years). Mr MN aspires to join the local chicory growing co-operative, but is reportedly unable to afford the (relatively modest) fee. The household’s modest domestic consumption is predominantly spent in Weenen, and they seldom travelled to adjacent towns.

Mr MN sells most of his produce via farm-gate sales to informal bakkie traders (particularly in the lead up to the monthly social grant pay-out market) and directly to the local wholesaler, Papadopoulos Trading. The groundnuts are sold to traders based in Tugela Ferry, who repackage them for resale to independent stores in Greytown (e.g. Aheers) and in Pietermaritzburg (130km away; almost two hours’ drive). Chickens are sold live to African farm-gate buyers, usually for their resale.

Labour and employment

With low levels of income, Mr MN relies heavily on family labour. He has ten children with his first wife, and a younger child with his second wife. Cultivation is undertaken by his two wives and a group of approximately four older children (no longer schooling), or the school-going children during school holidays. Mr MN employs little paid labour, with the exception of ten to

eleven ‘casual’ labourers engaged for a fortnight at the peak of the harvesting season. The labourers, recruited from the nearest villages or Weenen’s township, are each paid a sum of R250 per week.

Non-farm income and employment in ‘upstream’ horticultural networks

Having presented the six focal case studies that constitute the tier 1 level of the production network, the upstream (or ‘backward’) input supply linkages are now discussed. The material that follows discusses these second and third (tiers 2 and 3) levels for both horticulture and beef production. The four broad categories of inputs around which the descriptions are organised include: fertilizer, fuel and agrochemicals, seed and seedlings, and mechanical equipment and repairs. These five categories are broadly applicable to both horticultural and beef production. Two final categories of inputs, narrowly applicable to animal husbandry (and therefore beef production) are veterinary inputs and the supply of young cattle for rearing (usually, but not always, ‘weaners’).

Large and well-established companies dominate the upstream input supply, particularly to the larger commercial farmers. These first sets of linkages (from the tier 1 farmer respondents to tier 2 input suppliers) were either within the Weenen district, or, in the vast majority of cases, within a 100km radius. However, the subsequent sets of linkages (i.e. from tier 2 to tier 3) were in only a minority of cases within the 100km radius of Weenen e.g. to Estcourt, Greytown and Winterton/Bergville (machinery, service, agrochemicals, etc.). In other words, by the second jump (to the third tier), the linkages extended to sites out of the focal district.

Two exceptions to this pattern of comparatively large and out-of-district upstream enterprises were evident. These were, firstly, the local (viz. Weenen-based) self-employed mechanics, and, secondly, the town’s sole agricultural supplier Weenen Agri (both are described later). For the two small-scale farmers their linkages are less extensive (viz. geographically closer) than those for the large-scale commercial farmers.

Non-farm income and employment within input networks: Fertilizer

The South African fertilizer market is dominated by three manufacturers, who both produce and import for the domestic market. Within the Weenen district, Omnia and Kynoch dominate as suppliers of fertilizer for the high intensity horticultural production. Although fertilizer can be used to grow forage crops for beef production, within the Weenen district the use of stover, purchased lucerne bales, rangeland and bushveld grazing camps, make this a far less significant input in beef production.

Table 4: Use of fertilizer by farmers in the Weenen district

Fertilizer	Omnia Fertilizer	Kynoch Fertilizer
Farmer Mr DF	✓	✓
Farmer Mr MT	✓	
Farmer Mr SGF		✓
Farmer Mr RS	✓	
Farmer Mr LS		
Farmer Mr MN		

Case study 7: Omnia Fertilizer (fertilizer) (Tier2)

At least three of the six focal case study farmers sourced fertilizer from Omnia¹⁴. Omnia Fertilizer, in turn, is a division of Omnia Agriculture, which is in turn part of the JSE listed mining, agricultural and chemical conglomerate, Omnia Holdings. Established in 1953, its history and operations are intertwined with that of petrochemical multinational SASOL. It has been both a complainant against, and a defendant of SASOL, in multiple cases before South Africa’s competition authorities. Omnia Holdings is sizeable, with over R14bn of market capitalisation and 3 600 employees.

Table 5: Use of Omnia Fertilizer by farmers in the Weenen district

	Omnia Fertilizer
Farmer Mr DF	✓
Farmer Mr MT	✓
Farmer Mr SGF	
Farmer Mr RS	✓
Farmer Mr LS	
Farmer Mr MN	

Omnia Agriculture is active throughout southern Africa, along with the DRC, Kenya and Ethiopia and exports via offices in Australia, New Zealand and Brazil. It has facilities in several countries, including Malawi and Zimbabwe. It distributes its products through agricultural-input dealers but commercial farmers in South Africa readily procure directly through branches ('business units') across South Africa. Many of these transactions are brokered remotely, paid via electronic cash transfers and transport contractors hired to transport fertilizer from the depots. Omnia generally offers volume but not trade discounts, so small agri supply dealers do not buy at lower prices than large commercial farmers, incentivising these buyers to buy directly from Omnia.

Case study 8: Kynoch Fertilizer (fertilizer) (Tier 2)

Kynoch was a source of fertilizer for at least two farmers. Kynoch is one of the 'big three' fertilizer companies. It is an importer, blender and retailer of fertilizer in South and southern Africa, including Malawi, Zimbabwe and the DRC. Kynoch’s 150-year history is linked with the development of South Africa’s mining and explosives industries. The company was briefly owned by Norwegian global chemical conglomerate Yara International (1993–2003), but its controlling shareholder presently is the Export Trading Group, a multinational commodity trading group active in 30 countries (jointly owned by the Carlyle Group, a division of Remgro and Standard Chartered Bank PLC.). Kynoch has over 500 staff and 50 depots (many of them effectively agencies held by other enterprises) in South Africa. Kynoch distributes its products both via dealers and directly to farmers, with larger commercial farmers preferring to source directly. The very largest of national agricultural dealers are able order sufficient volumes to negotiate sizeable discounts.

Table 6: Use of Kynoch Fertilizer by farmers in the Weenen district

	Kynoch Fertilizer
Farmer Mr DF	✓
Farmer Mr MT	
Farmer Mr SGF	✓
Farmer Mr RS	
Farmer Mr LS	
Farmer Mr MN	

¹⁴ These represent minimum numbers. Small-scale African farmers may also be indirectly sourcing from Omnia via the inputs received from the state or their membership of the co-operative.

Non-farm income and employment within input networks: Fuel and agrochemicals

Fuel and agrochemicals are consolidated into a single category in this explication but they are relatively distinctive inputs in terms of downstream production and distribution.

In terms of liquid fuels (diesel), a local distributor – an agent for one of South Africa’s four petroleum companies – dominates the wholesale trade. The supplying petroleum company (Engen) has commercial interests that include a stake in a jointly owned domestic refinery and bulk-handling infrastructure. However, some production infrastructure and the pipelines that carry fuel are owned by a state-owned enterprise. With its strategic importance and tight regulatory context, the state is a prominent player in facilitating and governing the domestic fuel industry.

Agrochemicals, on the other hand, are sometimes sourced from agri retailers and dealers, but the vast majority (70% at provincial level) of local supply is procured through a regional agrochemical agency. The agrochemical agency, in turn, has close links to domestic and global multinational agrochemical production companies.

Vryheid Petroleum supplies fuel, while AFGRI, FAC agrochemicals and Imbewu Agricultural Supply Store provide agrochemicals (see Table 6). Finally the Weenen Agri store and Umbumbano Co-op are (often smaller) sources of both inputs.

Table 7: Use of fuel and agrochemicals by farmers in the Weenen district

Fuel and agrochemicals						
	Vryheid Petroleum	AFGRI (Winterton)	FAC ¹⁵	Weenen Agri Store	Imbewu Agric. Supply Store	Umbumbano Co-op
Mr DF	✓		✓	✓		
Mr MT			✓	✓		
Mr SGF	✓	✓	✓	✓		
Mr RS	✓		✓	✓		
Mr LS				✓		✓
Mr MN				✓	✓	

These inputs are now discussed in detail below.

Case study 9: Vryheid Petroleum (fuel and agrochemicals) (Tier 2)

Vryheid Petroleum (Vrypet) is a fuel wholesaler for Engen, delivering fuel directly to a commercial user’s on-site tanks. Vryheid Petroleum accesses the subterranean pipeline (operated by state-enterprise Transnet) running past Estcourt and taking fuel from Durban refineries and depots to the industrial centre of the Highveld.

Table 8: Use of Vryheid Petroleum by farmers in the Weenen district

	Vryheid Petroleum
Farmer Mr DF	
Farmer Mr MT	
Farmer Mr SGF	✓
Farmer Mr RS	✓
Farmer Mr LS	
Farmer Mr MN	

¹⁵ This category includes multiple FAC branches/agencies.

Vryheid Petroleum taps into the pipeline at Ladysmith, 140km from its head office in Vryheid. Raw diesel is 'uplifted', the proprietary Engen additives added, and the branded fuel is pumped into road tankers for delivery to wholesale clients (including farmers). Engen and distributors for at least one other fuel company tap into a common pipeline, but blend their own additives into it and use their own distributors. Vrypet distributes both petrol and diesel: the latter is used in agriculture and discounted through tax concessions for agricultural use. Vryheid Petroleum typically extends 30-day accounts to its customers.

Fifteen-year-old Vryheid Petroleum is not particularly large by industry standards but distributes approximately 5 million litres of liquid fuel a month. With the wholesaler margin on diesel (2012) at R0.62c per litre, its volumes represent a monthly turnover of roughly R3.1 million (R37.2 million per annum¹⁶). The key margins in the tightly regulated fuel industry are prescribed.

The privately owned firm has white owners and they were reportedly 'looking into' BEE (Black Economic Empowerment). In terms of competitors, Vrypet compete with a BP agent further north, but each firm tends to predominate in its proximate but expansive area. There are few direct wholesale competitors in the immediate area.

Finally, in terms of employment, the firm has two depots with twenty staff in total. Approximately half a dozen individuals are administrative and managerial staff, the rest of the employees are unskilled 'general workers', along with semi-skilled loaders and drivers, who deliver the fuel to clients. Despite the hands-on logistics required of this wholesale enterprise it is comparatively 'efficient', and employment numbers are even comparatively modest, considering the expansive geographical area it serves.

Case study 10: Engen and ENREF (fuel and agrochemicals) (Tier 3)

Petroleum (diesel) supplier Vryheid petroleum in turn sources fuel from Engen, a Johannesburg Stock Exchange (JSE) listed fuel, lubricant and petrochemical company. Historically a part of US Mobil Oil, the Engen Company was formed in 1993, and is one of about 100 subsidiary companies of Malaysia's state-owned Petronas. Engen has a presence in twenty sub-Saharan African and Indian Ocean Island countries, and exports to over 30 countries. It operates approximately 1 500 service stations, and (with the Caltex and Total) jointly owns South Africa's second biggest refinery, ENREF in Durban. ENREF produces liquid fuels domestically but imports refined products during periods of shortfall or disruption. Like most South African refineries it is configured to refine light crude oil, historically sourced mainly from Iran, but Saudi Arabia, Nigeria and Angola are increasingly competing sources of feedstock. The ENREF facility employs several hundred staff, and is a national key point.

Case study 11: AFGRI Winterton (fuel and agrochemicals) (Tier 2)

AFGRI was identified by a single respondent as a notable source of his agrochemicals. AFGRI is a multi-billion rand diversified, vertically integrated agricultural services company, with extensive interests, including 'agri-retail', milling, storage, feeds, equipment, poultry production, bulk handling and financial services. Like many current day agribusinesses AFGRI started as a co-operative (Oostelike Tranvaalse Kooperasie, ninety years ago). It grew steadily and by the 1980s owned over 2.5 million tons of bulk handling capacity, acquired several other enterprises (including several poultry producers) and became the biggest John Deere farm equipment distributor on the African continent. In the 2000s it rebranded as AFGRI, listed on the JSE, and began expanding into several southern and West African countries. A (state) Land Bank

¹⁶ This is approximate, calculated entirely on diesel and assuming the maximum wholesale.

financed BEE deal, the sale of its multi-billion rand debtor’s book, and retail merger of Senwes were undertaken in the last decade. It delisted and in 2014 a majority share was acquired for R2.4 billion by the international AgriGroupe (a private investment firm) to much controversy – not least because it had been built up with public funds.

Table 9: Use of AFGRI agrochemicals by farmers in the Weenen district

	AFGRI (Winterton)
Farmer Mr DF	
Farmer Mr MT	
Farmer Mr SGF	✓
Farmer Mr RS	
Farmer Mr LS	
Farmer Mr MN	

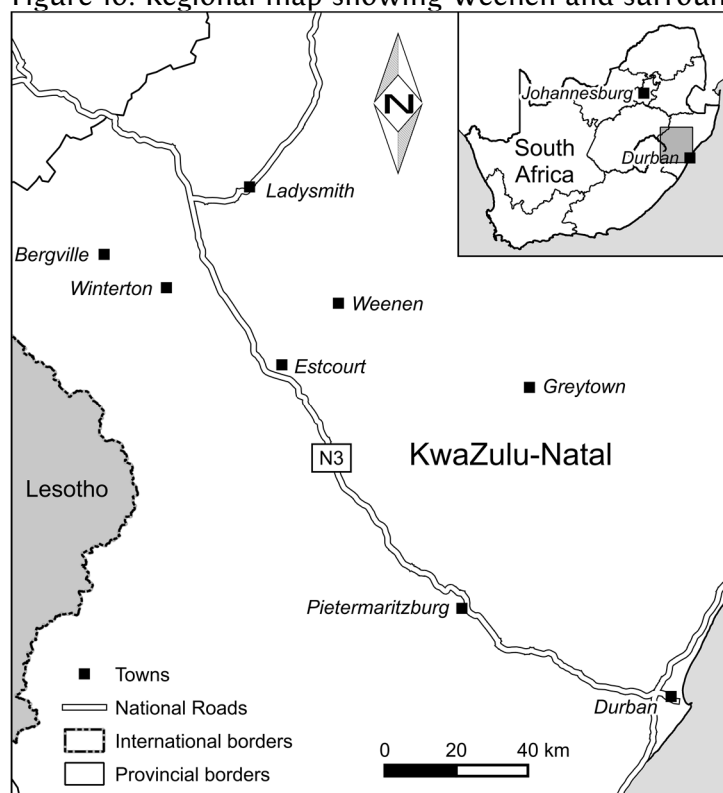
The Winterton branch is one of 50 AFGRI branches selling animal feeds, seeds, fertilizer and hardware requisites (including building materials) in South Africa. The branch’s main customers are both small- and large-scale farmers predominantly from the Winterton area and beyond (Colenso, Estcourt, etc.). The store will sell any quantity of inputs, and for larger quantities manufacturers deliver directly to farmers. It was the source of some of the agro-chemicals and hardware requisites sourced by Weenen producers, but purchases of fertilizer appeared rare.

AFGRI extends credit, with accounts administered centrally by the corporation. At local branch level smaller and irregular buyers tend to pay in cash, or via bank transfers. The Winterton branch reportedly has about twenty ‘large-scale’ (conventional, commercial farmers) and 40 smaller black (‘emerging’ farmers) customers; some of the latter with store accounts. Farmers generally receive technical input from suppliers (fertilizer, agrochemicals, etc.) from the producers’ sales representatives, even if the products are delivered through AFGRI’s distribution network.

In terms of upstream linkages, AFGRI Winterton sources more than 80% of its fertilizer from Kynoch in Durban and much smaller quantities from Omnia and Profert, and 90% of its cattle feed from Voermol Feeds (Tongaat), with the remainder from Mollantek (Free State) and the in-house AFGRI Feeds (Delmas and Bethlehem). Most seed is from Pannar Seed in Greytown; they also source a small proportion from DuPont Pioneer on the Reef. Hardware procurement is centralised and sourced by group buyers, often through national wholesalers. Some hardware items are domestically manufactured but much originates from the Far East (particularly China) and occasionally from Brazil, with very few items (typically high-value or specialised) from Europe or the US. The large volume sellers are cement (from PPC in Johannesburg and Nelspruit), and dimensional steel (from McSteel in Welkom).

With regards to employment in this rural enterprise, the branch employs sixteen permanent staff, including managers, but in planting season (September to November) 30 to 40 casual general labourers are employed to load and unload, etc. The permanent staff typically live in Winterton, while the rest are resident in the larger district, commuting daily from as far afield as Ladysmith. The larger AFGRI group has over 4 000 employees.

Figure 10: Regional map showing Weenen and surrounding towns



Case study 12: Farmers Agri-Care (fuel and agrochemicals) (Tier 2)

FAC in Winterton is an agency of a regional agrochemical supply and distribution company. It was widely cited by large-scale commercial farmers as a significant source of their agrochemicals. The premises include both the FAC agency and a ‘mechanisation agency’ that supplies farm equipment (mostly sourced from the national Barloworld Agricultural) and a fuel station. Two white male business partners own the enterprises. The FAC agency, specifically, has a high turnover (reportedly meeting the statutory definition of a ‘large enterprise’ at R25 million per annum).

Table 10: Use of FAC by farmers in the Weenen district

	FAC ¹⁷
Farmer Mr DF	✓
Farmer Mr MT	✓
Farmer Mr SGF	✓
Farmer Mr RS	✓
Farmer Mr LS	
Farmer Mr MN	

The agency belongs to the FAC agrochemicals distribution network headquartered in Durban, which is in turn owned by 26 shareholders, many of whom are owner-operator branch agents. Concentrated in KZN, the network has a majority market share (approximately 70%) in the province. The (larger) network has approximately 42 ‘field agents’, 44 depot staff and sixteen head office staff, with 61 stocking points across KZN, carrying 780 different products and servicing approximately 1 400 farmers.

¹⁷ Includes several FAC branches/agencies.

Agrochemicals are sourced predominantly via Johannesburg or Durban from any one of 27 different suppliers. Prominent supplying companies include virtually all the large multinational research-based chemical companies and sizeable local manufacturers, such as Syngenta (Switzerland), Monsanto (US), Bayer CropScience (Germany), DuPont USA, Madumbi (SA and Switzerland), Agchem (SA), Arysta LifeScience (Japan) and Villa Crop Protection (SA). FAC supplies both imported and locally licensed products, and both patent and off-patent products. A specialist distribution company undertakes cartage of the hazardous and highly regulated agrochemicals.

The crop protection sold by FAC differs from inputs such as fertilizer and seed in that its distribution and sale entails regular follow-up visits to clients. This makes it a highly relational and service-orientated industry, where reputations are paramount. With the relative dearth of state agricultural extension services, South Africa's commercial farmers often obtain technical input from independent agrochemical agents (many have formal training). Technical expertise, service and trust, rather than simply price, are key competitive strengths.

While the agrochemical agency employs seven people – three 'storemen', two administrators and two drivers – the owners are not simply managers; they are the key salespeople and technical advisors. Employees in the other co-owned enterprises include ten people in the mechanisation business (mechanics, parts salespeople, office administrators and 'storemen') and 13 fuel station pump attendants (on shifts). With two key technical advisors (sales people/owner-operators), FAC is noteworthy for the extent to which this branch (and other local branches) dominate agro-chemical supply within their area of operations. FAC is a ubiquitous supplier to Weenen's large-scale producers.

Case study 13: Weenen Agri (fuel and agrochemicals) (Tier 2)

Weenen Agri is a small agricultural supply and hardware store, occupying the premises of the Weenen's former defunct supply co-operative. It is consistently patronised by all the farmer informants – albeit for varying proportions of their total fuel or agrochemical requirements. The store is small, yet well stocked, with an approximately R12 million annual turnover. Its sales consist of fuel (10 000 litres diesel a month), fertilizer, hardware, hand tools, packaging materials, agrochemicals, seed etc.). Farmers use it in different ways. Smaller-scale farmers tend to source major inputs such as fertilizer from the store, while large-scale commercial farmers generally buy diesel, various hardware requisites and smaller quantities of agrochemicals or fertilizer (or only intermittently, as they typically source fertilizer directly from the manufacturers, and agrochemicals from FAC). The store, significantly, is the only commercial source of inputs within the town of Weenen (and within over 30km radius).

Three partners – a senior employee and two farmers in the district – privately own Weenen Agri. Although not a co-op, it is often casually referred to as such and reportedly run on 'co-op principles'. After the local branch of the co-op closed, the store was reopened with the explicit endorsement of the district's farmers. Their rationale was to save unnecessary travel to Estcourt (36km), Greytown or Ladysmith (60km) especially for small items or inputs. The store manager estimates that, excluding mechanisation, up to half the district inputs are distributed by the store (although this is difficult to compute or verify, and may be on the high side). The store's margins are reportedly low in order to compete with national agri chain stores (e.g. 5–7% on fertilizer, 30% on hardware), a manifestation of the stated 'co-op principles'. Fertilizer and agrochemical companies readily deal with large farmers, with the store securing no advantageous 'trade discount' or price advantage. Therefore the store's main virtue to buyers is that it offers 30-day accounts (effectively up to 60 days, with accounts sent at month end). Local buyers reportedly

support Weenen Agri out of a combination of accessing this 'credit', self-interest (retaining the sole local supplier in Weenen) and an element of social affinity and 'loyalty'.

Table 11: Use of Weenen Agri by farmers in the Weenen district

	Weenen Agri
Farmer Mr DF	✓
Farmer Mr MT	✓
Farmer Mr SGF	✓
Farmer Mr RS	✓
Farmer Mr LS	✓
Farmer Mr MN	✓

Weenen Agri extends credit, and while the credit vetting is not very formal (mainly for unknown buyers), the store reportedly has little bad debt. While some African farmers have accounts, many – especially small black farmers – are reportedly disinclined to access credit or engage with a formal credit application processes. The input supplying chicory growing co-op is apparently not a significant commercial threat to the store through supplying small farmers with inputs because these new out growers never procured from Weenen Agri anyway. Instead, an informant lamented, failed land reform farms which have seen erstwhile customers exit farming, have had a far more noticeable effect.

In terms of Weenen Agri's procurement, hardware requisites are sourced from about 30 different suppliers in the major urban centres (Durban, Johannesburg and Cape Town). Fertilizer is sourced from Omnia and Kynoch (Durban and Sasolburg) and cattle feed from 'Food World' (Tongaat Group). Suppliers generally deliver, but smaller items are collected with the store's bakkie.

Weenen Agri employs six staff, three (African) 'general workers', two (white) women, handling sales and accounts, and a male manager. It is reportedly a lean business, yet the manager reports it would verge close to unprofitability with more staff. The enterprise remains sustainable only because of this 'efficiency' and its low margins, enabling it to compete with much larger, distant dealers (Estcourt, Greytown, Ladysmith). The owners' tempering of their expectations of the store's profitability reflects their concern (and commitment) to the enterprise's sustainability and 'social logic'.

Non-farm income and employment within input networks: Seed and seedlings

Horticultural production (and any cattle farming entailing the production of forage crops) requires either seed or seedlings. In South Africa the vast majority of field crop seed production (such as maize) is dominated by US multinationals Monsanto and Du Pont Pioneer (and local Pannar owned by Du Pont). Horticultural seed (viz. vegetables) is produced by a wider range of companies, many with national profiles and international links, commercial relationships or ownership. Farmers source this seed either directly from the producers or (for smaller quantities) more proximate intermediaries. Seed potato production (generally more complex, costlier, subject to elaborate systems of certification and long fallow periods) sustains fewer local growers.

Finally, horticultural crops, such as cabbages and tomatoes are commercially grown from seedlings, rather than field crop seed. Contract growers of seedlings source seed from the above producers, but tend to have a more direct relationship with farmers, and a discernible 'local' footprint within the region. This group of upstream seed retailers, producers and seedling growers are described in what follows.

Case study 14: Imbewu Store (seed and seedlings) (Tier 2)

The Imbewu Agricultural Supply Store in Greytown services the small-scale African farmer segment of the market. The enterprise occupies a converted Victorian building, and includes the store, a dry cleaning depot and an ice-making business. While the agricultural supply store section of the diversified enterprise sells farming requisites predominantly to small-scale African farmers, this clientele overlaps with ‘market garden’ buyer and even, to some extent, the local (viz. Greytown) residents with a ‘lifestyle’ garden.

Table 12: Use of Imbewu Agricultural Supply Store by farmers in the Weenen district

	Imbewu Agricultural Supply Store
Farmer Mr DF	
Farmer Mr MT	
Farmer Mr SGF	
Farmer Mr RS	
Farmer Mr LS	
Farmer Mr MN	✓

For its buyers engaged in productive agriculture, the store supplies animal feeds, seed, fertilizers and some agrochemicals (in small sizes, mainly herbicides and pesticides). It also sells a variety of vegetable seedlings and small batches of one-day-old chicks on order, for customers. Finally, the enterprise has a small section of personal protective equipment and work footwear. The store’s African clients come from ‘all over’ to buy agricultural products, including the irrigation schemes of Tugela Ferry (45km away) and Tugela Estates (90km away).

The late-to-middle-aged white proprietor bought the store twelve years ago, and has expanded it substantially. His African low-income customers are reportedly very price conscious, so inexpensive seed outsells good hybrid seed by a ratio of four to one. Moreover, the effects of the general economic downturn are noticeable with buyers having less cash (typically from wages) to spend. Greytown has large national agricultural and hardware chain retailers (such as former co-op TWK and LandMark). It is reportedly the Imbewu Agricultural Supply Store’s diversification, superior customer service, willingness to respond to customer needs (viz. pack sizes), low margins and select niches, e.g. day-old chicks and seedlings that are all key to sustaining it.

An estimated 250 people per day visit the shop (estimated average spend of R20–R40), and frequently return with products to former Zululand communal areas. Of these, the owner estimates 70% to be small-scale African farmers. The store relies on some isiZulu language radio adverts and word of mouth to attract its buyers, some of whom come from far (e.g. Nkandla, 150km away). The retail is highly relational, and some credit is informally extended, with staff members often ‘vouching’ for customers’ bone fides.

The store’s products are sourced from the dominant agricultural supply, seed and fertilizer companies (Pannar Seed, Omnia, Starke Ayres, etc.) Seedlings are ordered from Sunshine Seedlings; day-old chicks from a Pietermaritzburg producer. The large packaged quantities are often inappropriate for the store’s clientele. The proprietor was previously prosecuted for (illegally) decanting fertilizer into smaller packs. He subsequently convinced some (but not all) fertilizer suppliers to package smaller quantities (and register the new pack sizes, the crucial bureaucratic step). This episode reveals much of the scale at which agriculture is frequently practised and conceptualised in South Africa.

With regards to labour and employment, in this part of the rural non-farm economy the store currently employs fifteen staff, the majority of whom are Africans (twelve to thirteen people).

Two white women work on administration and sales. The owner has a family (with adult children) but they are uninvolved in the enterprise.

Case study 15: Umbumbano Co-op (fuel and agrochemicals) (Tier 2)

The Umbumbano Co-operative is a primary production co-op, comprising small-scale African members and out growers cultivating chicory. Despite being concerned with primary production, it is listed as a tier 2, rather than tier 1 case study because it was identified as a significant intermediary for a focal small-scale farmer. It is of interest because it is a significant source of inputs, in addition to being a downstream recipient ('buyer') of farmers' chicory crop.

Table 13: Use of Umbumbano Co-op by farmers in the Weenen district

	Umbumbano Co-op
Farmer Mr DF	
Farmer Mr MT	
Farmer Mr SGF	
Farmer Mr RS	
Farmer Mr LS	✓
Farmer Mr MN	

The co-op has large, modern facilities, large tractors and chicory production implements imported from Europe. Harvested chicory produced under the auspices of the co-op is dried in an adjacent (privately owned) plant, and sold to Nestlé for final processing at their Estcourt factory as a coffee substitute. Nestlé historically sourced roasted chicory from Chicory SA (in Alexandria, in the Eastern Cape) but in the last decade imported inexpensive chicory from India. Its substantial and publicised support for the co-op is part of its AgriBEE initiatives.

There are nine active African members of the Umbumbano Co-op, and approximately twenty (non-member) 'out growers'. As chicory is an unforgiving and unfamiliar crop, in the inception phase the co-op has supported the production of other commodities by its members (maize, cabbage, butternut, etc.). Moreover, the processing plant's throughput rate (viz. to wash, chop and desiccate chicory) has also been lower than anticipated, causing bottlenecks and constraining the subsequent expansion of chicory production.

Currently, the co-op supplies diesel, fertilizer, agrochemicals and (imported) seed, and provides its members and out growers with access to tractors and equipment. The co-op nominally requires the value of these inputs to be paid back once they harvest, but this appears to have been partially waived in the past. (The precise economics are unclear as the co-op's activities are enabled by generous public and private donor funding, and does not yet turn a profit).

The co-op receives funding from various 'development partners', with the intention of gradually transferring costs onto members and out growers, and scaling up production. This entails five years of a successively declining subsidisation of farmer's input costs. It has been designated a 'catalytic poverty alleviation project' (under the auspices of the KZN Premier's Office) and funders include: multinational Nestlé (provides inputs and jointly runs the chicory drying plant with the co-op's founder); the Agricultural Development Agency (a provincial entity, which is providing substantial funding for many costs, including the five year 'inception' phase); and the provincial Department of Agricultural, Environmental and Rural Development (viz. provincial 'DAERD'), which supplies the 'emerging' farmers with some of the non-chicory inputs, such as fertilizer and seedlings.

With little precedent for local chicory production, it has entailed a steep learning curve, even in its third season. Chicory seed needs to be sown in situ (not transplanted), and as there are no

registered post-emergence herbicides, the crop demands laborious hand weeding. Chicory is, hence, both a high-value and highly labour-intensive crop. Unfortunately, the economics of local production are unfavourable: Weenen chicory costs R22 000/t, Chicory SA costs R13 000/t, and the landed cost of (albeit reportedly lower quality) Indian Chicory is R7 000/t. The Weenen chicory is expensive due to the scale of production, moderate yields to date, and inefficient drying facilities (or the need to truck the raw product 2 000km to be processed in the Eastern Cape).

The arrangements with regards to employment are equally complex. The co-op employs six people (drivers, mechanic, general labourer, administrator). These were recently augmented with the recruitment of two early-career Black mentors. The linked (but separately and privately owned) processing plant engages 36 casual contract workers from August (working up to three continuous shifts, for almost ten months of the year). In 2013 they worked for five months because of the sub-optimal planning/throughput into the dryer. The processing plant's staff members are sourced via a labour broker, but the four supervisors are actually permanent Nestlé staff seconded to it. The prominent founder and chairperson of the co-op is involved in the running of the processing plant.

Off-farm income and employment in horticulture: Seed and seedlings (Tier 2)

The section that follows discusses upstream input supply networks for seed and seedlings. Pannar and FCI are seed producers, whereas SPC and Premium Crops are seedling growers. The case studies of, particularly, the seed producers reveal their complex links to global input supply networks.

Table 14: Use of seed and seedlings by farmers in the Weenen district

	Seed and seedlings			
	Pannar (seed)	SPC (seedlings)	FCI (seed potatoes)	Premium (crop seedlings)
Farmer Mr DF	✓		✓	✓
Farmer Mr MT	✓	✓		
Farmer Mr SGF	✓			✓
Farmer Mr RS	✓	✓		

Case study 16: Pannar Seed (seed and seedlings) (Tier 2)

Pannar Seed supplies all farmers listed in the tier 1 case studies. Although it did not consistently supply the small-scale African farmers, its 'brand' was readily recognised and occasionally purchased by them. However they also sourced Pannar Seed via the intermediaries (the co-op and agri supply stores).

Table 15: Use of Pannar Seed by farmers in the Weenen district

	Pannar Seed
Farmer Mr DF	✓
Farmer Mr MT	✓
Farmer Mr SGF	✓
Farmer Mr RS	✓
Farmer Mr LS	✓
Farmer Mr MN	✓

Pannar Seed is South Africa's third largest seed company, supplying farmers nationally and internationally with field and pasture crop seed. It has operations (wholly owned subsidiaries) in the USA, Argentina and Europe, a prominent footprint in eight African countries, and sells

through agency agreements in many more countries. Pannar also licenses its proprietary maize and sunflower germplasm (genetics), well-adapted to African conditions, to other companies.

Established in 1958 by a group of Greytown farmers, Pannar produced some of South Africa's first hybrid maize seed. Until recently it was privately owned by a small number of the founding families. In 2012, multinational seed company DuPont Pioneer acquired an 80% stake, followed by complete acquisition after an almost three-year battle with South African competition regulators (they mooted a merger with Dow or Syngenta, to avoid a local duopoly). Monsanto, DuPont Pioneer and Pannar Seed (the latter continues to trade under its own name) dominate the seed market in South Africa (over 75%). The buyout reportedly gives Pannar access to superior R&D and germplasm, while DuPont gains Pannar's strong African footprint and consolidates its South African market share. Prior to the buyout, Pannar, like many seed producers, had been increasingly reliant on purchasing Monsanto's patented (maize) genetics.

Before 2012, Pannar had substantial interests in other agro-enterprises, including South African Factors (finance, property holdings), Judipex (retail, agricultural machinery, etc.), Pidelta (timber farming, livestock, abattoir and butcheries), Kombat (agrochemicals), Mascor (regional machinery and auto dealerships, fuel stations) and Stark Ayres (seed, retail nursery). These were excluded from the buyout and are now held by the Plennegy group, a private holding company¹⁸.

Pannar contracts with 'production farmers' in the major crop producing areas, including the 'maize belt' of the North West province and the Free State to grow seed. (Only minority proportions are in the Greytown area). Pannar procures many of its other inputs nationally (fertilizer, laboratory supplies, etc.) but implements and tractors are historically purchased from its own Mascor subsidiary. Pannar sells its seed through agri-dealers and chain stores, but also through area-based sales representatives who typically have formal qualifications and provide technical advice.

Pannar employs approximately 600 staff across its five South African research stations and Gauteng office, in addition to the large Greytown head office and hub. The Greytown head office staff number 400, including labourers/unskilled workers, scientists and laboratory technicians, along with a cadre of administrative and managerial staff. Half of the Greytown staff earn weekly wages (i.e. are blue-collar workers), and the balance earn monthly salaries (i.e. are clerical, professional, managerial, etc. workers). Management is overwhelmingly male and administrative staff is female, while scientists and technical personal are more evenly balanced between genders.

The vast majority of the unskilled and semi-skilled workers are African men (exceptions include female African support staff in the administrative complex), augmented with 300 seasonal labourers hired for 'harvesting' and 100 labourers hired for 'de-tasselling maize', etc. Pannar still (reportedly reluctantly) retains some worker housing on its large premises, with 30 family and 30 single-sex quarters.

Pannar is a large and influential local employer (it is among the largest private sector employers in town), with a low staff turnover (less than 10%) and a long-standing commitment to Greytown. It has made substantial local investments in/for staff (health and education facilities), maintains a private aerodrome and aircraft, and contractually prohibits head office staff living outside of Greytown.

¹⁸ In which the founding families apparently retain stakes, but this is difficult to verify conclusively with a private company.

Case study 17: SPC Seedlings (seed and seedlings) (Tier 2)

SPC is a large seedling grower in the KZN central midlands area, identified by two of the tier 1 larger-scale commercial farmers as a source of their inputs. SPC is a prosperous family-owned business. It is over 25 years old, and managed by two (white) brothers that are the scions of the original founders. They grow vegetable and forestry seedlings (pine, eucalyptus and wattle) and have two branches; one outside Greytown and the other at Pongola.

SPC's forestry seedlings are sold to the large papermakers and landowners, but 75% of their sales are vegetable seedlings. Vegetable seedling production takes place for much of the year; with spikes at Christmas time and Easter, and a second-quarter lull. SPC uses the industry standard 'Speedling system' (polystyrene trays), and prices vary widely according to variety. They offer no formal guarantees; seedling growing is a business where reputations are important.

Table 16: Use of SPC seedlings by farmers in the Weenen district

	SPC Seedlings
Farmer Mr DF	
Farmer Mr MT	✓
Farmer Mr SGF	
Farmer Mr RS	✓
Farmer Mr LS	
Farmer Mr MN	

SPC has 300 regular commercial farmer customers with whom they liaise regularly for marketing and planning purposes. Seedlings are grown to order for a growing fee, and seed can be sourced from virtually any producer. SPC discourages unscheduled buyers as 'speculative' planting makes planning difficult, and buyers are therefore unlikely to receive optimal varieties. In the past SPC has supplied state-funded projects (co-ops, municipal projects, etc.) but reportedly found the administrative aspects onerous. Small-scale African farmers, with their low volumes, are not a large target market, either.

SPC sources inputs, including seed from the various large commercial growers, such as Starke Ayres (formerly owned by Pannar) and Mayfair Seed, with cabbage and lettuce amongst their biggest lines. They source vermiculite from Phalaborwa and coco peat from Sri Lanka for their proprietary growth medium, which they also sell to other growers and nurseries.

While there are a number of competitor seedling growers in the region, SPC staff claim that it is among the largest and most innovative. The enterprise has featured in *Farmer's Weekly*, and has invested in mechanisation (such as a high-tech seedling extractor carousel) to increase productivity.

With regards to its employee numbers, SPC employs 105 staff, most of whom are semi-skilled African women in a rural area with comparatively few formal work opportunities. Of these, 99% are permanent employees: as it is precise work, requiring training, dexterity and care, SPC desires a stable workforce and is disinclined to hire casual employees.

Case study 18: FCI Seed Potatoes (seed and seedlings) (Tier 2)

Seed potato producer FCI was identified by a grower within the sample as a source of his seed. FCI owns modern premises, including an administrative hub, staff housing and cold stores in the town of Nottingham Road, and farms in the Kamberg district. The enterprise appears well capitalised and run, (winning potato certification board prizes for several successive years). The

company is family owned, and, while the family emigrated to Europe decades ago, they maintain farming interests in South African and their European base country.

Table 17: Use of FCI seed potatoes by farmers in the Weenen district

	FCI Seed Potatoes
Farmer Mr DF	✓
Farmer Mr MT	
Farmer Mr SGF	
Farmer Mr RS	
Farmer Mr LS	
Farmer Mr MN	

Potato seed production is shaped by complex technical and institutional arrangements. FCI produces eight different varieties of seed potato, several of which are subject to plant breeders' rights (PBR). Most plant material is sourced globally but some is local (especially open-pollination varieties). FCI's relationship with customers has changed over the years. They used to market to about 50 regular farmers, but now only deal directly with a few farmers. Increasingly, the firms that hold the PBR have a greater role. On FCI's behalf, they contact and invoice farmers directly for seed contractually produced by FCI. Domestic 'sub-licence' holders (mostly agribusinesses and former co-ops) manage domestic PBR royalties. The apex rights holders are foreign companies, which typically are affiliated to UPOV (the International Union for the Protection of New Varieties of Plants). Seed potato production is technically demanding and several regional competitors have exited the industry.

The Potato Certification Board is a statutory designated certification authority, examining seed for disease and setting standards. Certification and propagation laboratories are dotted about South Africa's potato growing regions. While KZN is a comparatively small production area, the end of the cycle coincides with increasing demand from the winter-rainfall area of the Sandveld. This counter-seasonality aids local producers' cash flow.

As seed potatoes lose vitality and disease resistance with each successive generation, progressive farmers are usually loath to go beyond the fourth generation and seldom retain seed. Costly inputs make commercial farmers disinclined to compromise on seed quality. Not only is saved seed of poorer quality, it is subject to the PBR royalty regime.

With regards to inputs, seed and genetic material are sourced globally, including Scotland and the Netherlands. Fertilizer is sourced from Profert (Durban). Some specialised agrochemicals are imported directly, but most are procured via FAC (Howick). Seed is expensive, and fertilizer use is intensive, and these high input costs mean that in a high irrigation area it costs R100 000/ha to plant potatoes (versus maize at R10 000/ha).

FCI employs approximately 90 permanent workers split between the sites (tractor drivers, store men, sprayers, managers, a few administration staff), and about 100 seasonal casuals, rising to 350 during high season. FCI is reportedly unaffected by the recent minimum wage increase because they were close to or even above the new sectoral determination, anyway. However, more wage pressure would apparently hasten them into mechanisation, especially mechanical harvesting.

Case study 19: Premium Crops Seedlings (seed and seedlings) (Tier 2)

Premium Crops, a seedling producer outside Pietermaritzburg in Cramond, produces vegetable seedlings for large-scale commercial farmers but also, significantly, for small-scale African farmers. Although neither of the two small-scale farmers identified it specifically as a source of

their seedlings, it is a significant supplier to this market. Since the mid-1980s, four competing seedling growers have increased to eight or nine, in the larger northern KZN midlands region.

Table 18: Use of Premium Crops seedlings by farmers in the Weenen district

	Premium Crops Seedlings
Farmer Mr DF	✓
Farmer Mr MT	
Farmer Mr SGF	✓
Farmer Mr RS	
Farmer Mr LS	
Farmer Mr MN	

Premium Crops grows vegetable seedlings but also timber, turf and ornamental plants. Their production is evenly split between the four large categories: vegetables, forestry, ornamental nursery plants and turf. This diversification enables them to manage the seasonality of vegetable seedling growing.

Vegetable seedlings are supplied relatively, to a large area that covers Midmar, Howick, Muden, Weenen and extends to Tugela Ferry. Premium Crops uses the industry standard polystyrene ‘Speedling’ trays and sources seed from any seed producer desired by a client, including Rijk Zwaan in the Netherlands (mainly lettuce and tomatoes), Sakata (the former Mayford Seed company) and Starke Ayres.

While small-scale farmers are reportedly cost sensitive and often reluctant to spend on expensive hybrid seed, Premium Crops has approximately 50 regular customers for vegetable seedlings, of which 30–40% are areas, such as communal area irrigation schemes, with groups of (African) small-scale farmers. This is a much larger proportion of SSFs than other seedling growers, because Premium Crops has long sought to develop this market. One of Premium Crops’ co-owners (who is white but speaks isiZulu fluently) has reportedly built up relationships with SSFs (e.g. Muden and Tugela Ferry) over many years. The enterprise made preparatory planning and marketing trips to these customers, and seedling deliveries are aggregated for cost-effective transport. Premium Crops produces seedlings to order; ‘speculative’ production is avoided as buyers are unlikely to receive optimal varieties or age of seedling (they lose vitality if not planted out immediately).

Premium Crops’ largest line for Weenen’s farmers is cabbages. For these farmers Premium Crops offers the industry standard 30-day accounts, and has little bad debt. Small-scale farmers tend to purchase cash on delivery.

In terms of employment the enterprise is owned by three partners, and employs two managers and three section managers (‘indunas’), four office staff and approximately 75 semi-skilled employees (virtually all African women). The physical work reportedly requires dexterity and care, hence SPC tries to avoid high employee turnover. This makes for comparatively large numbers of permanently employed, semi-skilled, African women employees. A co-owner noted the potential threat to employee retention in the face of a mooted donor-funded seedling nursery for smallholders. During a ‘study tour’ by the donor project, he voiced the concern that the production would see him having to retrench up to fifteen of his staff.

Case study 20: Sakata Seed Southern Africa/MayFord Seed (seed and seedlings) (Tier 3)

MayFord Seeds is a source of seed readily cited by the preceding seedling growers. A long-established (1931) South African seed company, MayFord Seeds sells vegetable, flower, turf and

(domestic market) ‘packet’ seed. By mid-century it had established trial facilities and a laboratory. Its seed laboratory is accredited by the National Department of Agriculture and compliant with the benchmark International Seed Testing Association (ISTA) rules. In 1999 the Sakata Corporation (Yokohama, Japan), which is amongst the largest of the multinational seed companies, bought out MayFord Seeds. It was renamed Sakata Seed South Africa (but retains the MayFords brand for many of its products). Its seed is distributed by 80 franchisors within South Africa. The company has its headquarters in Johannesburg and employees number just under 200.

Non-farm income and employment within input networks: Mechanical equipment and repairs

Even comparatively labour-intensive modern agriculture is heavily reliant on machinery. In broad terms there are two distinct sources of mechanical equipment and maintenance: the first is the dealers formally accredited by the applicable equipment manufacturer; the second is firms not endorsed by the original manufacturer. Manufacturer or original equipment manufacturer (OEM) accredited importers and local dealers are affiliated to national distributors (and manufacturers). These are historically domiciled in Gauteng or South Africa’s coastal port cities (Durban, East London, Port Elizabeth), and in turn affiliated to (licensed or wholly owned by) manufacturers based in Europe, North America and the Far East (Japan and Korea).

Entities not endorsed by the original manufacturers include sellers of second-hand equipment (dealers, auctioneers, etc.) and independent mechanics (not formally affiliated to dealers). The distribution of spare parts largely follows this same dualism of OEM versus non-OEM, the latter marked by widely varying degrees of organisational and economic formality. New machinery is distributed in the manufacturer-endorsed distribution network, but as it ages and falls out of the warranty period, it is increasingly likely to be serviced and traded by ‘aftermarket’ and non-manufacturer endorsed firms. Both the OEM and the ‘aftermarket’ dealers, suppliers and repairers are discussed in what follows.

Estcourt Mechanical Services and Mascor are original manufacturer-accredited dealers and repair agents. Motorquip deals in both OEM and ‘aftermarket’ components, whereas the independent mechanics are firmly outside of dealer-accredited networks.

Table 19: Use of mechanical equipment and repairs by farmers in the Weenen district

Mechanical equipment and repairs				
	Estcourt Mechanical Services	Mascor ¹⁹	Motorquip (Estcourt)	Independent Mechanics (Weenen)
Farmer Mr DF		✓		✓
Farmer Mr MT	✓		✓	✓
Farmer Mr SGF	✓	✓	✓	
Farmer Mr RS	✓		✓	
Farmer Mr LS			✓	✓
Farmer Mr MN				

Case study 21: Estcourt Mechanical Services (mechanical equipment/repairs) (Tier 2)

This Estcourt based firm is an official dealer for a well-known marque of automobiles (including bakkies), commercial vehicles (trucks over one ton capacity) and various brands of agricultural

¹⁹ Greytown and Winteron branches are combined here.

equipment (tractors and most tractor-drawn implements). At least two tier 1 informants transacted with it.

Table 20: Use of Estcourt Mechanical Services by farmers in the Weenen district

	Estcourt Mechanical Services
Farmer Mr DF	
Farmer Mr MT	✓
Farmer Mr SGF	
Farmer Mr RS	✓
Farmer Mr LS	
Farmer Mr MN	

The dealership's car, truck and tractor workshops are separate, each with their own staff and parts stores. The annual sales consist mostly of light vehicles (cars and bakkies), followed by agricultural equipment, and then trucks (approximately 10). Neither vegetable farmers nor dairy farmers routinely purchase trucks; they hire transport contractors or have bulk requisites (e.g. fertilizer, feed) delivered. Alternatively, buyers send their own transport to collect outputs from farmers. Cattle farmers are an exception and occasionally purchase seven to eight ton trucks, but the largest truck buyers are the state, including municipalities. Changing production practices shape equipment sales, such as a current enthusiasm for 'no till' planting, and a demand for larger, more powerful machines for more extensive consolidated farms and for specialist 'subcontractors' (for harvesting, etc.).

The dealership's diverse range of agricultural implements is sourced from various firms, including South African manufacturers, such as Dormas, Middleburg (potato planters, sorters, washers, etc.), Nothmec (boom sprayers), Falcon, Howick (haymaking equipment, brush cutters, etc.) and BPI (ploughs and harrows). BPI's imported brands include Fela (Italy), sourced from the national distributor Argo Industrial (Johannesburg).

The dealership also sources second-hand vehicles and equipment; the latter often favoured by 'small-scale' (African) farmers. Several of these are African men with industrial jobs in town that typically run lucrative side businesses as ploughing contractors (for other small African producers).

Generally, institutional buyers (purchasing trucks) and farmers (purchasing tractors, etc.) are brand loyal, and particular brands tend to dominate certain geographical areas. The dealership holds most commonly used spare parts ('spares') in stock, for tractors, trucks and implements. It sources urgently needed parts either from other dealers in the network, or, more typically, from national agents via overnight courier or international agents via international airfreight. Much of the success and reputation of a dealer reportedly depends on the quality of its workshop.

The commercial arrangements for distribution of the dealer's various products have clear spatial aspects. Cars and trucks are essentially sold on an agency basis, (i.e. the dealer does not purchase them outright for resale) but a dealer has little geographical exclusivity. In contrast, tractors and much agricultural equipment are typically distributed through a geographically exclusive marketing arrangement: the dealer thus enjoys exclusivity (and responsibility) for the large sales area. ('Out of area' buyers usually entail split sales commissions.)

Regimes of profit are similarly varied. The sale of farm equipment and tractors is remunerated on a sales commission basis, while trucks and, especially, autos (cars and bakkies) have far more complex arrangements of 'volume incentives', bonuses, rebates and targets, etc., which are set

by manufacturers. The upshot of this is that strategically meeting a sales target could be more lucrative than the sales margins on single vehicles.

The dealership employs a total of 35 people, who are evenly divided between autos, trucks and tractors/farm equipment. Each unit has approximately six mechanics, three people in spares and one or two general assistants, along with a small cadre of sales people. Although there is a cadre of unskilled 'general workers', many of the administrative and technical staff are comparatively skilled and accordingly remunerated.

Case study 22: Mascor (Greytown/Winterton) (mechanical equipment/repairs) (Tier 2)

Mascor is a regionally based KZN official dealer in vehicles (passenger and commercial) and farm equipment, and operator of a small number of fuel stations. At least two of tier 1 respondents routinely procured equipment and services from it. Apart from its outlets in the province, Mascor has single farm equipment dealerships in Uganda and Kenya; part of its efforts to diversify beyond the highly competitive domestic South African market. The enterprise was formally owned by Pannar, but is currently held by the privately owned Plennegy Group (Pannar's original owners).

Table 21: Use of Mascor by farmers in the Weenen district

Farmer	Mascor (Greytown/Winterton)
Farmer Mr DF	
Farmer Mr MT	
Farmer Mr SGF	✓
Farmer Mr RS	
Farmer Mr LS	
Farmer Mr MN	

Mascor Greytown is located within the same town in which Pannar was founded and consists of three separate dealerships: Toyota, General Motors (Chevrolet, Opel, Isuzu) and John Deere (tractor) – each complete with its own facilities, sales staff, parts stores, and workshops. Mascor's fourth 'enterprise' (adjacent to a dealership) is a BP fuel station. The four enterprises cumulatively employ over 60 staff. In contrast, the smaller Mascor Winterton branch is simply a John Deere farm equipment dealer, with under a dozen staff employed.

Case study 23 Motorquip Estcourt (mechanical equipment/repairs) (Tier 2)

Motorquip Estcourt is a franchise auto spare parts dealer, selling predominantly non-OEM auto parts and accessories. It is a frequently cited source of spare parts, often procured or paid for directly by Weenen farmers, including when they engage the services of one of Weenen's local independent mechanics.

Table 22: Use of Motorquip Estcourt by farmers in the Weenen district

	Motorquip (Estcourt)
Farmer Mr DF	
Farmer Mr MT	✓
Farmer Mr SGF	✓
Farmer Mr RS	✓
Farmer Mr LS	✓
Farmer Mr MN	

Motorquip is located on a busy Estcourt street corner and very densely stocked with merchandise. It employs eight staff and is owned by a Muslim businessman. Within the store, agricultural equipment (primarily tractor parts) has its own 'desk', three staff and section of the parts store. Motorquip's inventory of the older, difficult-to-source tractor parts is swelled by the

acquisition, several years ago, of the stock of a bankrupt dealer. A key feature of Motorquip’s supply of tractor parts is the reportedly encyclopaedic knowledge of a semi-retired parts store man (long employed by Motorquip, and with a small shareholding in the enterprise), who typically comes in to work a few times a week. He crucially knows which tractor parts are needed, and which can be substituted for unavailable ones. The firm routinely sources merchandise from major metropolitan centres. Garages, fleet operators and larger commercial farmers often hold 30-day accounts with the enterprise. The firm employs eight staff.

Case study 24: Independent mechanic Mr ZV (mechanical equipment/repairs) (Tier 2)

Late-to-middle-aged Mr ZV was born into a white Weenen farming family, but he worked for a variety of enterprises, for large national companies (as a mechanic and workshop manager), and as an independent mechanic. He and Mr MK (described later) were identified by tier 1 respondents as service providers they used to repair their equipment and vehicles. Mr ZV shares workshop space with a second man, another independent self-employed mechanic, with a complementary set of skills.

Table 23: Use of independent mechanics by farmers in the Weenen district

Farmer	Independent mechanics (Weenen)
Farmer Mr DF	
Farmer Mr MT	✓
Farmer Mr SGF	
Farmer Mr RS	
Farmer Mr LS	✓
Farmer Mr MN	

The market for mechanical repairs within Weenen is relatively segmented. Mr ZV generally services the middle class and farmer market. He also does extensive fabrication (implements, trailers, obsolete parts) in his well-equipped workshop. Although self-employed, Mr ZV and his workshop tenant are a tier above ‘gum tree’ mechanics who run informal enterprises without indoor premises.

Upstream linkages are to a range of suppliers and service providers, including spare parts stores, specialist component repairers and light engineering workshops. These linkages tend to rely on long-established relationships of co-operation outside of any official dealer network. Mr ZV does not generally supply spares parts: instead, spares are purchased on the accounts of farmer-clients; alternatively, payment for parts is required in advance.

Mr ZV surprisingly has no employees, despite the difficult manual work and existence of many fairly routine and menial tasks. He expresses a strong preference for working alone and is disinclined to expand his busy sole proprietor enterprise. In terms of consumption, expenditure and investment, while Mr ZV is not conspicuously wealthy, he appears solidly middle class with his own suburban-style home and two new vehicles.

Case study 25: Independent mechanic Mr MK (mechanical equipment/repairs) (Tier 2)

Mr MK is a middle-aged white man and the second of three long-established, independent (and self-taught) mechanics working in Weenen. A repairer of local equipment and vehicles, Mr MK works from the backyard of his home, but maintains another home (and his family) in an adjacent town. Mr MK works independently, but has a mutually supportive relationship with another local mechanic. The men lend each other tools, refer customers between each other and specialise in slightly different repairs. Mr MK’s competitive strength is his local residence (and therefore responsiveness – a key attribute when the farming production cycle is in full swing), and a R250 hourly rate, approximately half that of an official dealer.

Other competitors in the field of mechanical repairs in Weenen include a small local garage, and an 'independent contractor' who subcontracts for two large auto dealers outside of Weenen, working locally from a mobile workshop (an extensively equipped bakkie). Other mechanics exist in the area, but they are seldom direct competitors, and are even less formal (e.g. have less equipment and more modest facilities, and are cash enterprises). These mechanics often service the 'kombi trade' (i.e. minibus taxi African market).

Upstream linkages from the independent mechanics are to the procurement of spare parts, and occasional engineering services. The transport of parts to Weenen often relies on the town's regular commuters. Spare parts are sourced on the customer's behalf and customers either pay for the parts in advance or pay the supplier directly. Several customers have accounts with the auto spares shops in Estcourt or Ladysmith.

Mr MK does not have any employees, as he apparently prefers to keep the overheads low. He owns the property from where he works and another property occupied by his wife and family in an adjacent town. He claims that his livelihood, which is reliable, independent and has low overheads, is adequate for his needs, securing him a middle class monthly income (comparable, in scale, to that of a teacher). At the time of the interview a recently sold business provided the larger household with an additional income stream.

Case study 26 DE Engineering (mechanical repairs) (Tier 3)

DE is large engineering shop ('workshop') enterprise in Estcourt. It represents a 'third' tier enterprise because informal mechanics (and even official equipment agents) that access it are tier 2 entities, already a step removed from the tier 1 farmer-clients. They rely on the engineering workshop for repairs or fabrication of mechanical components.

In terms of its history, the founder, Mr DE, trained as a fitter and turner and opened the enterprise in the early 1980s. It is 51% 'black owned', via a recent BEE deal; its active black partner apparently networks, solicits, prepares and tenders for state work. (Mr DE explained he would hypothetically 'rather have 49% of R20 million turnover business than 100% of R3 million turnover business'). The enterprise has 50 employees.

The enterprise undertakes 'general engineering work, including repairs (removing broken studs, etc.), fabrication (trailers, implements, etc.), and specialist welding. It also undertakes significant structural steel work (construction and civil engineering). Finally, it manufactures, supplies and erects silos and feed bins across southern Africa. DE Engineering is the largest workshop in town, and does large specification cutting and bending work for other enterprises.

In terms of their farmer customers, large-scale farmers have 30-day accounts, while small-scale, walk-in customers operate on a cash-on-delivery basis. DE Engineering does limited automotive work (rebuilding engines, etc.), as this is done by other firms in town.

In terms of inputs, steel is made by Arcelor Mittal SA and supplied by McSteel (Durban) or MacDonalds Steel (Pietermaritzburg). For corrosive coastal areas, the steelwork is sent to Durban or Pietermaritzburg to be galvanised. Workshop consumables are sourced from Pietermaritzburg or Johannesburg. Specialist components, such as silo augers are imported from Denmark, and less frequently fabricated domestically.

Finally, the firm has made an ill-fated foray into training. The impetus for this came from the national shortage of artisans, the prospect of SETA (Sectoral Education and Training Authority) funding, and the accessibility of unused training facilities in Estcourt. Due to various

bureaucratic failures these activities have reportedly been commercially disastrous for the firm, and are being wound up.

With regards to employees, the firm has 50 employees, consisting of fifteen artisans, including boilermakers, welders, fitters and turners (white, coloured, Indian and black African); half a dozen female office/administration staff (white and coloured); and the rest are mainly unskilled (black African male) general labourers in the workshop. The staff numbers are high, but Mr DE is apparently reluctant to retrench staff. He is not only conscious of the lack of other employment but also the technical skills of artisans, which may be hard to recruit in future.

Non-farm income and employment within input networks (beef production): Weaners (young cattle)

All of the preceding categories of inputs are applicable to horticultural, and in many respects also beef production. However, the supply of young animals (often, but not exclusively weaners) is specific to animal production, and hence specific to the beef production network. It is useful to foreground that the case study that follows is of an individual animal producer farmer, who might otherwise be indistinguishable from the focal tier 1 case studies. This case study is a tier 2 case study, due to its relative place as a supplier of inputs to a tier 1 EHU.

Case study 27: Ethu farm (beef) (Tier 2)

Ethu farm was identified by a tier 1 informant as a source of young animals (weaners and older animals). The farm is run by Mr MNL, a middle-aged African livestock farmer. He is an articulate ex-teacher who farmed cattle on communal land before acquiring his current 262ha 're-capitalisation' farm, on lease from the Department of Land Reform and Rural Development. The farm was purchased and re-capitalised at a cost to the state of R6.6 million. Mr MNL has occupied the farm for three years, but argues the farm needs additional recapitalisation to intensify production and become maximally profitable. Sharing an expensively furnished farmhouse are his five young children and stay-at-home wife.

Mr MNL had 80 animals prior to his acquisition of the farm, but enlarged his herd using the state's recapitalisation programme. By 2013 he had 180 cattle (recently down from 207). At 2.5ha per livestock unit, he could keep only 80 cattle if relying exclusively on rangeland grazing. He accordingly has a 25ha and a 35ha block under irrigation, and in 2013 produced 240 tons of maize for the cattle. The additional pastures are unused, due to the prohibitive cost of electricity to irrigate them. He is presently waiting out the dry spell, using bales of hay grown on his farm.

His cattle are mostly 'Simbras' (Brahman-Simmental cross). He sells up to approximately twenty head a month to an abattoir and makes some face-to-face sales. He tries to avoid auction commissions. Old and C-grade animals, and fat and infertile animals are also routinely sent to the abattoir. He buys good bloodlines from a well-known Winterton breeder. Despite his origins in communal area cattle husbandry, he is reportedly reluctant to buy from communal areas: the quality of animals is often poor, and ownership sometimes violently contested. He sources animal health products from a large veterinary practice in Estcourt.

His employees (mostly the former white farmer's ex-employees) plant a few vegetables, predominantly for their own consumption. Mr MNL describes his role as managerial and strategic ('I never sit on a tractor'). His ambitions for the farm include the establishing of a feedlot with 300 animals, for which he has reportedly been allocated R4.6 million from the Provincial Department of Economic Development. He has received no other funding,

complaining the Land Bank and commercial bank loan criteria were unattainable (i.e. 10% cash equity, 33% asset collateral). (However, his upper middle class lifestyle, including luxury vehicles, etc. does not seem supported exclusively by cattle production numbers.) He owns six tractors, and provides mechanisation services to the Department of Agriculture, namely ploughing services for small/communal area African farmers.

With regards to employment numbers, Mr MNL employs two domestic workers and nine farm staff, rising to 30 during harvest time (maize). Only one farm worker family lives on the land, the rest live in a distant (25km) communal area. He reportedly pays the minimum wage.

Non-farm income and employment within input networks (beef production): Veterinary services and products

Veterinary related inputs (as with the previous category of young animals) are inputs limited to animal husbandry and not found in horticultural production. The broad category of veterinary services and products consists of professional services and various animal health preparations and medicines. These products vary; while some are sold in a retail environment, many are prescribed and dispensed by professional veterinarians.

Case study 28: Estcourt veterinary practice (Tier 2)

Several cattle farmers identified an Estcourt veterinary practice as a source of professional services and medication. It is a large 'country' (viz. rural) practice with a roster of four to five veterinarians (several of whom are partners in the practice) and approximately seven additional support staff (nursing and administrative staff, general assistants, cleaners, etc.). Their agricultural clients consist of both livestock and game farmers in the larger region. Hence, domestic, farm animals and wildlife are all within the practice's purview. They are also significant suppliers of veterinary preparations, vaccinations and medications in the district, sourcing these from the major animal health and pharmaceutical suppliers, predominantly based in Johannesburg. Within Estcourt they do not have any direct competitor, but agri supply stores do sell more basic (less regulated) animal health products.

Summary upstream (input) production networks in horticulture and beef

A number of comments need to be made on local upstream input linkages within the horticultural and beef production networks.

Firstly, Weenen-based farmers are compelled to go outside of the immediate district to source key inputs, such as mechanical equipment or parts. However, a farmer could conceivably source some inputs from intermediaries within Weenen (particularly with the Weenen Agri store, and FAC agrochemical depot at Papadopoulos Trading). Yet many farmers, particularly the larger-scale commercial farmers, routinely elect to deal directly with intermediaries outside of the town. These farmers typically have the scale, degree of formality and capital required to procure directly from suppliers elsewhere in the region or nationally.

Many of these input suppliers were themselves only two or three linkages removed from the largest of South African or global agricultural input manufacturing corporations. These networks see agrochemicals (both proprietary and 'off-patent') sourced internationally or manufactured domestically by local subsidiaries under licence. Similarly, much farm machinery

(particularly more complex motorised and electro-mechanical equipment) is imported. Much South African manufacture equipment is limited to basic mechanical implements.

These tier 3 enterprises are the point at which the linkages extend to extra-national enterprises or parent companies or suppliers based outside South Africa. These are frequently to the industrial centres of Europe, Japan and, to a lesser extent, North America, but also to industrialised sites in middle-income or developing countries (India, Malaysia). Finally, these same kinds of linkages also tie South African input suppliers to the petroleum supplying regions of the world.

Finally, a key difference between horticultural and beef linkages is the manner in which horticultural supply networks are unidirectional, versus the recursive and bi-directional quality associated with beef. Unlike horticulture, beef production networks could see a specific intermediary being an input supplier (typically feed or young animals) or a seller of cattle. But in other instances the same individual or enterprise would be a buyer of cattle. Within the beef value chain, individuals and enterprises are often either buyers or sellers of cattle at different points in time.

Forward linkages

The section below presents the forward linkages, downstream of the six focal tier 1 case studies. These forward linkages include activities and enterprises related to the transport, processing, distribution, retail and wholesaling of agricultural outputs. Unlike many of the previous input linkages, that are often shared by both horticultural and beef production, forward linkages are generally distinct and separate for these two commodities. In the section that follows, horticulture's forward linkages and then those of beef are presented.

Non-farm income and employment in output networks (horticultural production): Transport and logistics

Case study 29: Transpro Logistics (outputs and marketing) (Tier 2)

Transpro Logistics is a Ladysmith transport company that historically transported horticultural products from the surrounding districts. The firm occupies large modern premises, with 30 truck and flatbed trailer combinations, and a turnover approaching the top end of the R5–25 million band.

The transport of horticultural products has declined in importance for the firm, and the core of the enterprise currently consists of intercity freight, including fresh produce from Johannesburg. The low 'backhaul' rates of otherwise empty trucks returning from the industrial heartland of Gauteng keep freight charges (and profitability) low on the Gauteng to KZN route. Securing return loads not only generates profit from an otherwise un-laden truck; transporting fresh produce is facilitated by easy access to the FPM (it is quick to load a truck, and the FPM is open 24 hours a day).

However the owner indicates his business is in decline, with less haulage work out of Ladysmith, as many local enterprises have closed (leather, clothing, etc.). Moreover, his enterprise is effectively caught between two different kinds of competitors. The first are the small operators in a poorly regulated industry, who do not have the same costs and overheads. The second are

the large corporate players, who have the economies of scale to secure discounts on diesel, trucks and maintenance.

The major input costs are diesel (50%) followed by wages, with diesel theft a perennial issue. In addition, the business environment is uncertain, as the diesel price fluctuates with little notice, but they have to advise customers of price changes 30 days in advance. His trucks are predominantly sourced second hand from Johannesburg (and also Durban), and he has a 'mongrel' (viz. mixed marque) fleet. Spare parts are similarly purchased predominantly from the official agents in Johannesburg (with trucks travelling there daily).

The enterprise employs 73 staff. Each truck has a driver and assistant (the trans- border trucks have lone drivers), hence the staff consists of 22 drivers, twenty assistants, some semi-skilled yard staff, one forklift operator, one 'tea lady', three operations staff, two security guards, six mechanics and assistants, and six administrative staff. Employees are from the larger region, including Ladysmith, Winterton, Bergville, etc. The owner has a strong preference for employing locals, as drivers' shifts can be awkwardly timed, and local residence means less absenteeism due to travel for holidays, funerals, etc.

Staff members earn the legislated wages set by Bargaining Council: mechanics around R10 000 and drivers in the region of R8 000 to R12 000 per month. Drivers are eligible for performance bonuses (for customer service, correct paperwork, a clean truck, etc.). The two cross-border drivers are remunerated with a bonus if they make it through the border. All staff members are part of the National Bargaining Council for the Road Freight and Logistics Industry, and the owner pays into their provident and wellness fund.

Non-farm income and employment in output networks (horticultural production): Retail, distribution and wholesale

Case study 30: Papadopoulos Trading (outputs and marketing) (Tier 2)

Papadopoulos Trading is a retail and wholesale enterprise run by two of Mr SGF's (a tier 1 informant) siblings. Not only was the enterprise a significant conduit for produce from the family's farming operations, it was a key node in local horticultural output and distribution networks. Virtually each farmer within tier 1 transacted with the enterprise, although many did not do so exclusively (i.e. it was only one of their various downstream intermediaries).

Table 24: Use of Papadopoulos Trading by farmers in the Weenen district

	Papadopoulos Trading
Farmer Mr DF	✓
Farmer Mr MT	✓
Farmer Mr SGF	✓
Farmer Mr RS	✓
Farmer Mr LS	✓
Farmer Mr MN	✓

Papadopoulos Trading occupies physical premises adjacent to a main road in Weenen, consisting of a large, modern shed, with dedicated small retail floor space and warehousing. The enterprise not only retails produce from the surrounding Weenen district locally, but also distributes it into the larger (northern KZN midlands) region.

Since its inception a decade ago, the wholesale and retail enterprise has grown and the proportion of output from the family's own farm has decreased relatively, to account for less than 15% of the enterprise's multimillion rand turnover. The enterprise better enables Mr SGF and his kin to synchronise their supply to market demand, leading to better prices (and less wastage). Papadopoulos Trading also functions as a marketing agent, brokering direct transactions between farmers and buyers (it only physically handles 65% of the produce it sells).

In addition, Papadopoulos Trading sources inventory from many other producers, particularly via the Johannesburg FPM, and distributes it widely through the KZN northern midlands region (Estcourt, Ladysmith, etc.). In an average year, the turnover attributable to produce sourced outside the Weenen district typically exceeds that of produce sourced from within the district (a bumper local potato harvest might reverse the proportions). Significantly, sourcing more widely gives the enterprise the turnover and seasonal continuity necessary to sustain it and secure its continued place in the competitive market. Papadopoulos Trading's operators are fairly nimble and entrepreneurial; it also sells basic packaging material and rents space to an agrochemical agent (thereby drawing farmers into the premises, and informally revealing local production trends). Finally, the enterprise responds opportunistically to wholesale deals, such as inexpensive Pakistan-made cement, and a once-off large consignment of inexpensive sugar.

The customers of Papadopoulos Trading consist of local 'walk-in' shoppers, along with hawkers and Weenen's (small) shopkeepers. The wholesaler's large customers include other retailers and wholesalers in towns outside of Weenen, to which they have longstanding links. These include a supermarket in Ladysmith, as well as several Muslim-owned retailers and wholesalers in Estcourt serviced by a key (Muslim) intermediary in Estcourt. The latter's customers include hawkers, shops and a large Muslim-owned supermarket chain. Papadopoulos Trading also distributes, when demand and (therefore) prices are suitable, into the FPMs (mostly Pietermaritzburg, but also Johannesburg), along with large truckloads sold to cross-border traders from Lesotho.

With regards to employment, the opening of the enterprise provided an opportunity for the youngest of the family's adult siblings to join the family business after he matriculated. One adult sister assists him, and another does the administration and bookkeeping. The two intertwined enterprises (the farming operations and Papadopoulos Trading) employ fifteen to twenty workers daily (the majority in the farming operations), and draw from a churning pool of approximately 40 workers. Only two or three workers, who often work within the wholesaler, are described as 'permanent' employees.

Case study 31: CZ bakkie-operating buyer (outputs and marketing) (Tier 2)

Mr CZ is a self-employed bakkie-operating buyer, from several farmers, of Weenen's fresh produce (he transacted with several tier 1 EHU throughout the course of the year). His rural Tugela Ferry district (village) home, a solid, block-built, tin-roofed structure approximately 55km from Weenen (but over an hour's drive on unpaved roads) features a garage-sized shop. He sources groceries in Greytown and fresh produce in Weenen, Tugela Ferry and Muden. In Weenen Mr CZ buys buy cabbages, potatoes, tomatoes and onions and routinely stops at the large Weenen wholesaler (Papadopoulos Trading), to examine its wares. He stocks his store at least twice a week; stocking it fully in anticipation of month end and social grant pay days. Monthly earnings can vary widely, but are generally in the R5 000 to R10 000 range.

In terms of his history, Mr CZ was born in Tugela Ferry, schooled to Standard 8 (Grade 10), and migrated to urban employment in the mid-1980s. He worked as a machine operator and forklift truck driver before returning home in the mid-1990s. On returning, he used his accumulated savings (about R5 000) to open a 'tuck-shop' from his father's home, selling basic grocery items and paraffin. Within a year the business had expanded to include beer, meat, cool drinks, etc., mainly sourced from Greytown. He initially used his neighbour's car to buy stock for his store, but purchased (and repaired) a small half-ton bakkie in 2002 (for about R12 000). Buying trips then extended towards Dundee (beer sorghum, maize, and maize meal) and Pietermaritzburg (household durables). A breakthrough in his business came when he secured a truckload of maize meal on credit, which became a regular arrangement for about five years.

He accumulated enough money to diversify his economic activities, buying a minibus taxi for about R65 000. He drove the vehicle himself, but under his wife's management the shop declined and was eventually closed. After two years, in the mid-2000s, he bought a second minibus taxi. However when the taxi association decreed that taxi owners must employ drivers (i.e. no owner drivers) he did so, and in the course of 2012 both uninsured taxis were written off in successive road accidents. As he had begun construction of his new (current) home and was cash strapped, he exited the taxi industry, bought his current bakkie and refocused his efforts on his shop. The margins are reportedly tight, and village customers complain if prices are too high. The bakkie is an integral part of his trading and generates additional income through being hired for trips (for social visits, shopping, clinic/hospital visits, etc.).

With regards to labour and employment, Mr CZ is effectively self-employed and is occasionally aided by an unpaid cousin. He maintains close links to his father's adjacent homestead, but his wife is absent/estranged and non-resident.

Case study 32: Mr SM bakkie-operating trader (outputs and marketing) (Tier 2)

Mr SM is a 36-year-old married African man, self-employed as a bakkie-operating trader. He purchases vegetables for resale from a range of tier 1 Weenen producers. Born in Bergville, he left school in Grade 9 and worked in a succession of farm jobs as a labourer. In 2008 he accrued savings, purchased an old vehicle and began trading for himself. His earnings are variable, but seldom above R5 000 per month.

Mr SM's decade-long employment as a farm worker, tending cattle on a dairy and beef farm saw him learn to drive a tractor (generally easier than a car). In the mid-2000s his father (formally employed and moderately prosperous, with 50 head of cattle) acquired an old car that Mr SM also learnt to drive. Mr SM saved and purchased a cheap, old car (a decrepit Mazda, costing R2 500). He briefly returned to his old job to accumulate starting capital, before he began trading chickens. For three years he would buy chickens from a poultry farm in Winterton, and sell them at the taxi rank in Bergville (approximately 10km away).

He sold his first vehicle and purchased another old vehicle, however there were substantial delays in securing the roadworthy certificate for the car. Unable to legally drive it and therefore conduct his enterprise, he began a more sedentary business: an informal barber shop. Once the car was registered, he resumed trading, this time vending vegetables from the roadside in Bergville. His is a single owner-operator business, with no employees.

He currently sources vegetables from both Winterton and the more distant (60km) Weenen. Prices, seasonal availability and demand determine his choice of stock. He currently sells (in order of importance) spinach, tomatoes, cabbages and onions, he sources five to eight crates of

tomatoes or spinach once or twice a week. He tends to only sell cabbages (purchasing approximately 200–300 head) at the end of the month, because their large size and high volume limits their profitability. He has built up business relations with several farmers and reportedly secures favourable prices. He routinely telephones farmers, including small-scale African farmers, to find out what produce they have available. The second car has been replaced by an old half-ton bakkie. The task of keeping his old vehicles running is an expensive and demanding part of his economic activities.

Case study 33: Aheers supermarket (outputs and marketing) (Tier 2)

Aheers is a large, family-run independent supermarket chain, operating the largest supermarkets in the urban centre of Greytown. It is a market outlet for one of the tier 1 EHUs and is significant for the extent to which it purchases from local producers, including small-scale farmers.

The multigenerational family enterprise has seven directors, five of whom are kin. While KZN independent supermarket trade is historically Muslim-dominated, the eponymous Aheers are Hindu. Aheers stores in Greytown consist of a large upper-market supermarket (food, groceries and some consumer durables), and a large, 'low-cost', warehouse-format wholesale store. The former targets the upper market demographic, and the latter low-income African and wholesale customers. Aheers also own a large hardware in Greytown and recently (2012) opened a supermarket in the rural town of Kraanskop.

The Aheers family is long established locally; their grandfather was a market gardener in Greytown, and ran a fruit-and-vegetable store in the early 1960s. The enterprise grew and began competing with the branded stores. In the early 1990s the family built the supermarket, followed by the other stores. Significantly, they have invested in land to build their own distribution centre on the edge of Greytown, and reportedly aim to expand a franchise brand.

The Greytown Aheers stores procure from the two different voluntary buying groups to which they are affiliated: the Shield Buying Group (part of Masscash, held by the Wal-Mart-owned Massmart), and Metcash Group (formerly Unitrade). The buying groups negotiate (and split) volume discounts, and producers deliver directly to the stores. Their large size and decentralised and locally embedded management make Aheers significant local buyers of fresh produce from many local farmers, on a spot market basis.

Aheers dominates the local supermarket trade but is acutely aware of potential competition from the national chains. They are therefore prominent locally with advertising ('We are up against nationals with TV ads!' a director exclaimed), community corporate social investment and various sponsorships. They also offer complimentary transport to the local taxi rank, and have an association with local Christian celebrity evangelist Angus Buchan (e.g. they stocked his bottled water, and business benefited generally from his mass events).

With regards to labour and employment there are just over 350 workers within the entire Aheers group. The upscale supermarket (with high-end shop fittings, air-conditioning and high staff ratios) has 200 employees. Of these, 40% are permanent employees and 60% are on contract via a labour broker (the Aheers family are the majority owners of the labour broker that supplies their own retailers). The enterprises are reportedly compliant with the minimum wage for retail, and while they appear to do much training (bakery, butchery, etc.), they struggle to retain skilled African staff. (Retail has long hours and is not especially prestigious). An estimated fifth of employees rent weekday houses or rooms, but some are from the surrounding districts (Muden, Tugela Ferry, Msinga, etc.).

Case study 34: Ladysmith fruit-and-vegetable wholesaler (outputs and marketing) (Tier 3)

This enterprise, a large fruit-and-vegetable wholesaler and retailer in Ladysmith, was a buyer of produce from Weenen's Papadopoulos Trading. (It is, therefore, a tier 3 enterprise, effectively two steps removed from the focal case study farmers of tier 1).

The wholesaler's premises are large but utilitarian, with loading docks, warehouse-like storage space and industrial shop fittings. The owner, Mr IP started his business about 30 years ago while working as a bus driver (of his father's bus) between Weenen and Ladysmith. Mr IP is a devote Muslim but he has long-standing links with the Christian family that run Papadopoulos Trading. He and four of his (remunerated) kin work in the enterprise.

The enterprise targets low-income and wholesale markets. Its customers include individual African customers, street vendors and small shop owners (about twenty routinely bulk buy). The customers come from a 100km radius, including a Weenen shop. About 90% of Mr IP's produce is sourced from the City Deep Market in Johannesburg and from Western Cape (deciduous fruit). Procuring from the City Deep Market in Johannesburg is cost effective because return transport rates ('backhaul') are low. Mr IP hires an array of transport contractors and sources stock daily; he often redistributes this stock locally and regionally, using his own (smaller) trucks. Finally, only 10% of his stock comes from Weenen, predominantly from Papadopoulos Trading, but he occasionally deals directly with individual farmers.

Mr IP explained that his main competitors are Chinese and Indian traders (competing in the low-income segment of the market). However, he is well established in the area and deals in large volumes. An enduring challenge is the perishable nature of second- and third-grade produce (especially in the summer heat).

With regards to employment, the enterprise currently employs about 30 staff: mostly black Africans; six females and 24 males. The workforce comprises three main occupational categories – drivers, 'conductors' (loaders, truck assistants) and shop assistants. Mr IP has about six drivers, all whom are permanent. They work eight hours a day, from Monday to Saturday, and five hours on Saturday. The drivers are paid about R800 per week and the conductors, loaders and shop assistants R500 per a week. Mr IP's employees are locally resident (within a radius of 30km). He sometimes hires up to twenty casual workers, whom he pays in cash and in kind.

Case study 35: Mackson supermarket (outputs and marketing) (Tier 3)

Mackson is part of a large independent Muslim family-run supermarket group based in Estcourt. Two brothers each own multiple stores in the highly segmented retail market. There is an upscale Hyperzone store that has an almost 'department store' format, a mass-market supermarket, and a low-cost 'Cash and Carry' store with a wholesale format. Apart from the enterprises in Estcourt, the family own a fourth supermarket in Bergville. The stores are segmented by price (viz. customer 'market') and, hence, tend to be racially differentiated. While the Estcourt group procured negligible quantities directly from Weenen farmers, it was traced via a linkage from Weenen's (tier 2) Papadopoulos Trading. This effectively renders Macksons a tier 3 enterprise.

With regards to fresh produce (horticulture), very little is sourced locally (from the larger KZN central midlands area); 'local produce' accounts for 2–5% of their total volumes and is predominantly perishable leafy vegetables (cabbages, spinach, lettuces) – 300 heads of cabbage are bought each alternate day. Very occasionally, potatoes are sourced within the immediate region. The supermarket chain does not, therefore, specifically prioritise local

suppliers, and reportedly tends to negotiate keenly on prices with local producers (as commission and transport costs are lower).

The group's fresh produce procurement sees deciduous fruit sourced directly from producers in the Western Cape, but small lines (cucumbers, ginger, garlic) are usually bought via the Pietermaritzburg FPM. They source bulk lines from the Pietermaritzburg, Durban and Qwa Qwa (Harrismith) markets, but predominantly through an intermediary accessing the Johannesburg FPM. This Muslim-owned distribution company, Honeyfresh, sources many pre-packed items, such as Rugani carrots, Barlow beetroot and ZZ2 tomatoes, etc. from South Africa's very largest producers. Honeyfresh secures good prices through large volumes, and its trucks frequently deliver part loads at Macksons en route to Durban. This arrangement is fundamentally enabled by the low 'backhaul' rates for otherwise empty trucks returning from Gauteng.

While the volumes of fruit and vegetables sold in the group were unclear, it was suggested the present approximately 2 000m² store, with extensive warehousing, does R400 000 turnover per month, approaching R1 million at Christmas time in its fresh-produce section. Macksons stockpiles large quantities of produce for December, when prices and demand rise sharply.

Competitors to Macksons include the national chains, such as Boxer (recently opened) and Shoprite (more established). Macksons competes actively and 'buy in bulk, too'. The informant plausibly estimated that Macksons retains the majority of the market share in Estcourt, and benefits from the local buying autonomy of being independently run (i.e. not a corporate chain).

With regards to employees, there are a little over 300 employees in the current store and in about 600 in the entire group. They are predominantly locally resident in Estcourt.

Non-farm income and employment in output networks (beef production): Processing

Case study 36 Weenen abattoir and butchery (beef) (Tier 2)

The abattoir and butchery in Weenen is a family business, identified as significant within the local beef value chain. The enterprise both buys and sells cattle from tier 1 cattle producers. The business consists of three small-interlinked enterprises: a butchery (and general dealer), a farm/smallholding (30ha) and a small, modern abattoir. The Muslim owners engage in some livestock production and trading and the abattoir is located on their farm. The enterprise is a family affair, involving a man in his mid-20s who runs the abattoir, his brother who runs the butchery, their father who is responsible for cattle trading, and the brothers' two unmarried paternal aunts who tend the store.

The great grandfather (of the younger men) opened the general dealer and butchery in 1908, while the farm was acquired in the early 1990s (apparently facilitated by white family friends). In the past the family used the municipal abattoir on a designated day for Halaal slaughter, and after its closing a Ladysmith facility, before building their own abattoir in 1994. Their registered abattoir slaughters Halaal meat (the default in KZN). Their competitive advantage is their reputation and Halaal bona fides (until recently, theirs was the only reputable or formal retail butchery in Weenen).

The abattoir's throughput varies, but normally totals twenty cattle monthly, and 25–30 during busy December. They also do 'service slaughtering' for customers, and 'foreign' Muslims (Somalis etc.) travel from adjacent urban centres to buy and slaughter animals for their personal consumption.

With regards to inputs they both buy in and rear their own cattle for slaughter. (They have approximately 45–55 head of cattle at a time, on their own and hired grazing). The brothers' father does the day-to-day cattle trading; including buying from commercial and communal areas (the latter is difficult because ownership is sometimes contested or insecure). They buy a bull at stud auctions every two years to diversify the herd genetics. They grow and buy in lucerne from a number of farmers in the district, while veterinary medicines are sourced from Estcourt Veterinary Services.

Not all their cattle are slaughtered: the family actively trade cattle too. Many of the buyers of their cattle are simultaneously also competitors in the purchase of other (additional) cattle. The family transacts with white, Indian Muslim and increasingly African cattle traders, some coming from up to 400kms away. One of the brothers transacts cattle at auction (Vleissentraal, Winterton and Escort), using their ten ton truck. Trade often has a seasonal quality. Finally, they also sell cattle to buyers constituting the African 'ceremonial' or 'ritual' market (rituals, bridewealth, etc.), but mostly the family compete against these African buyers for animals. Cattle prices readily rise (viz. are 'distorted') beyond beef market values if the colour, hide markings and horns, etc. are desirable to the ceremonial or ritual use buyers.

With regards to their retail operations, the general dealer has declined precipitously (especially since the arrival of a Chinese-run supermarket), however the butchery is still profitable. It sells mainly beef, but also a little mutton, and bought-in frozen chicken. A large part of the continued success of the butchery is its reputation and relational quality, especially with Muslim customers, who even place orders that are delivered to distant towns.

With regards to employment, labourers include low-paid (viz. sub-minimum wage) African youths reportedly placed by their parents, largely to receive training and who get a 'stipend'. However the core workforce consists of six regularly paid African men who earn the minimum wage and live on the farm and in the adjacent township.

Case study 37: Vleissentraal Auctioneers (beef) (Tier 3)

Vleissentraal Ladysmith is the local branch of a national livestock auctioneer. It was identified by the Weenen abattoir and butchery operator as a downstream outlet for the sale of cattle. For many cattle owners it was a key intermediary in both the purchase and sale of cattle, backwards and forwards along the beef value chain.

Established in 1932, Vleissentraal has branches countrywide and a head office in Pretoria. It is a privately owned limited liability company, bought out in 2007/8 by Subtropico. Subtropico, in turn, is a listed agricultural holding company with a R280 million turnover (2013) and with its origins in the 1993 restructuring of the state Banana Board.

The Ladysmith branch, with fifteen staff, is amongst the smallest nationally. It was established when the area's previous large auctioneers, Stockowners was liquidated. Many former Stockowners branches reopened as individual enterprises when the parent company folded: the big players in the industry remain Vleissentraal and BKB.

Like many others, the branch is registered as an independent company, while the head office (supplying finance, marketing support, credit management, etc.) holds majority shares in it.

Vleissentraal and BKB are rare in being able to pay sellers out promptly (the next day), effectively bridging the payment and risk gap between buyers and sellers. This is a competitive strength of the enterprise.

The Ladysmith branch conducts livestock auctions and dispersal sales (animals, fixed property and moveable assets), along with nationally advertised stud auctions. It operates in a large geographical area (roughly 350km driving radius from Ladysmith). Regular livestock auctions by the small Ladysmith branch see an average of 250 cattle sold per auction (twice weekly), whereas their Winterton sales are bigger, averaging around 400–700 cattle. Demand is seasonal and prices spike towards December but fall with demand in mid-January. Moreover, drought typically sees cattle sold and a commensurate premium emerge for fat cattle. Many buyers buy weaners and put them on veld (rangeland), so this market is very dependent on weather and rain. Cattle make up 90% of the Ladysmith branches' livestock market, unlike other regions.

The actual sale premises vary widely. They can often be local farmers' association grounds or municipal facilities. In the last three to four years they have conducted auctions in communal areas under the auspices of the Provincial Department of Agriculture. Payments at any auction are typically by electronic funds transfer (EFT), as cash is risky and discouraged with punitive fees. Some regular buyers have negotiated terms (7–14 days), with the head office facilitating the vetting and insuring of the firm's debtors' book.

Vleissentraal has a total of fifteen staff, including auctioneers, administrators and 'marketing advisers', in addition to between seven and twelve labourers. Labourers and office staff receive regular salaries, 'marketing advisers' receive commission, and auctioneers are either salaried or freelancers.

Case study 38: JQ Abattoir (beef) (Tier 3)

JQ Abattoir is a medium-sized, privately owned abattoir outside Estcourt, and was identified as a buyer of cattle by Ethu farms (tier 2), hence making it a tier 3 entity.

JQ Abattoir is located well outside the urban envelope and on the edge of a game farm. The abattoir slaughters 30 cattle and 300 sheep a week, sourced from a wide geographical area (Greytown to Mooi River). In addition, they do much 'service' slaughtering, including for retail butcheries and foodservice industry (such as a butchery, delicatessen and restaurant enterprise in Mooi River). The abattoir reportedly supplies meat to wholesalers very widely – as far as Durban. It is a family-run business; the white male founder and his son-in-law handle operational and managerial matters, while the founder's wife and (married) daughter maintain the accounts.

The abattoir has been established for a decade, after the closing of municipal abattoirs and process of deregulation. Like abattoirs elsewhere across KZN, cattle and sheep are slaughtered under Halaal conditions. Significantly, the owners of the abattoir used to own a butchery store in Estcourt, but closed it down and focused their efforts on the abattoir. The Estcourt butchery market has become increasingly competitive, particularly with the entry of national supermarket chains.

With regards to upstream linkages, the enterprise sources large quantities of hardware requisites locally from Estcourt, for the game farm and abattoir. Specific abattoir equipment (knives, blades, stun guns, etc.) is mostly obtained from two large Johannesburg companies, which import extensively. Cleaning and packaging materials are procured from a privately owned business in Ladysmith. In addition, specialist hardware and plumbing supplies and plumbing and electrical services (contractors) are from Estcourt. The abattoir pumps its own water from a borehole, and processes its wastewater on site (all independently of the

municipality's water reticulation system). Finally, the abattoir operates two 'reefer' (refrigerated) trucks that run almost daily and are regular buyers of diesel in Estcourt.

The abattoir employs 25 staff, including two clerical staff, several general labourers, and a range of skilled workers ('block boys', etc.). Virtually all of these employees are African men, while administrative staff includes two 'coloured' women. Most staff are reportedly locally resident (Estcourt and environs). Recruitment is reportedly not difficult, despite the skills seemingly required.

Conclusion: Farm and non-farm income and employment

The empirical material presented in the preceding case studies illuminated key aspects of farm (tier 1) and then non-farm (tiers 2 and 3) employment and incomes. It did this with reference to downstream (output) and upstream (input) production networks within which agriculture is embedded. Key aspects of upstream and downstream production networks, including the employment and livelihoods created within them are discussed in considerably more detail later (sections 5 and 6 respectively). Before the off-farm and larger RNFE can be considered in more detail, the characteristics, prospects and problems of 'on-farm' employment are examined in the section that follows.

5 On-farm employment

Although the focus of the current inquiry is fundamentally on rural employment within the RNFE, on-farm employment warrants discussion for two reasons. Firstly, explicating the on-farm agricultural employment shows how its long-term development has fuelled rural employment. Secondly, examining the on-farm employment illustrates the nature of the constraints of it effectively creating future employment and livelihoods, at least in its current configurations. In other words, the following discussion of on-farm employment provides the context against which the wider RNFE is later examined, including the non-farm agricultural sector.

Agricultural employment, poverty and inequality

Many of South Africa's agricultural producers have faced a continuous cost and price squeeze. Of all their inputs, labour costs have historically been the domain where they could best exercise control and the cost pressures have often been 'externalised' downward onto vulnerable workers. Employers and employees, farmers and farm workers are now in a context where they are grappling with the ending of an era of cheap agricultural labour. However the price and cost squeeze for producers does not simply mean the end of production. It may see the production of some farmers cease and their exit from agriculture, but it can also result in consolidation and changes in production systems: in crops, scale, mechanisation and the use of capital. For farmers that remain in production, these are likely to continue to be key factors.

These dynamics are, here, considered against wider patterns of poverty, inequality and economic opportunity within South Africa. The dualistic nature of the agricultural sector is echoed in household and racial inequality. Compared to those with no involvement in agriculture, inequalities amongst South Africa's racial groups is higher amongst those who engage or work in agriculture. This issue is particularly salient because high levels of inequality in agriculture, and the larger countryside, also ultimately impact on the RNFE.

Examining inequality and poverty in relation to agriculture poses a number of difficulties, including defining agricultural households from existing survey data. Households have varying degrees of involvement in agriculture, from own-account farmers to waged employees. 'Farming' can therefore denote ownership of a lucrative business, a lifestyle activity or hobby, receipt of income from agricultural wages, or a survivalist strategy for augmenting food security. Pauw (2007) makes a useful schematic distinction between 'expansive' and more strictly or narrowly defined agricultural households. The former derive less than half their income (or substitute for income they would have to expend) from agriculture, and the latter derive more than half their cumulative income from agricultural sources. About 26.4% of black households are 'broadly' defined as agricultural households (viz. derive any benefit from agriculture), whereas only 8.8% of white households are. On the other hand, only 7.8% of black and 3.2% of white households are strictly defined as agricultural households (i.e. derive more than half of their income from agriculture).

Of the black African households that are involved in agriculture, 86% (broad definition) and 71% (strict definition), are involved in agriculture reportedly as a 'source of food'. The average black agricultural household is poor; it has a lower average income than the average black non-

agricultural household. Conversely, of the white households involved in agriculture, 66% (broad definition) and 91%, (strict definition) are involved as their main or an extra source of income: they are farmers or salaried agricultural employees. Black and white South Africans hence engage in agriculture differentially: the former for food and the latter for income. These dynamics are particularly evident in the table below.

Table 24: Annual income in rands at 2000 prices: Agricultural and non-agricultural households

	Agricultural* households			Non-agricultural households		
	Black	White	Total	Black	White	Total
W. Cape	24 899	138 876	34 043	51 531	164 851	79 525
E. Cape	16 102	148 292	22 813	21 915	153 481	30 045
N. Cape	16 437	299 111	78 092	31 700	165 497	53 656
F. State	11 377	653 225	48 482	24 481	141 624	41 322
KZN	15 959	108 368	17 509	31 662	176 282	43 285
N. West	24 059	768 432	69 344	27 809	137 041	34 288
Gauteng	19 793	222 082	25 150	39 197	172 278	61 667
Mpum	18 232	198 261	22 314	28 861	145 680	36 831
Limpopo	19 081	558 836	36 482	24 131	132 471	26 289
Average	18 108	308 267	32 181	32 326	164 754	47 805

* Agricultural: 'strict' definition

Source: Pauw 2007: 20

White 'agricultural households' are generally commercial farmers, managers or skilled employees, many of whom earn substantial incomes. The white agricultural households in Free State, North West and Limpopo provinces, with average incomes exceeding half a million rand per annum, are particularly noteworthy. In contrast, black agricultural households generally earn relatively low agricultural wages. Black Africans make up more than 95% of the 'agricultural population' but they earn less than half the sector's total income. These broad dynamics are evident in the Weenen district where the Gini index, measuring inequality, records figures of between .63 and .68 across the municipal wards to make up the town and its immediate environs (See Appendices 2 and 3). Finally, Pauw argues that South Africa's agricultural inequalities 'differ structurally from those in the rest of society' (2007: 195), largely attributable to the difference in the ownership of income-generating and productive assets, rather than simply radicalised wage differences.

This has three implications for understanding the relationship between agriculture and the RNFE. The first is that high levels of poverty constrain the spending power of those employed as workers in agriculture, and hence the potential expenditure multipliers from agriculture within the RNFE. The second is that prevailing patterns of inequality reinforce themselves over time. They feed into a larger pattern of concentration of wealth, which sees those with resources increasingly inclined to shop, invest, school their children and even reside in locales outside of the local RNFE. The third implication is that the very structure of poverty and inequality, in relation to the agricultural sector, is ultimately rooted in asset ownership. Therefore, efforts to equalise incomes or reduce inequality are likely to be constrained in the absence of shifts in the asset shares amongst the groups that hold them.

Agricultural employment within Weenen

Having foregrounded larger national dynamics, the present section examines agriculture and agricultural employment within Weenen in detail. Employment within the focal case studies is discussed in relation to local production practices, enterprise strategies and larger national

dynamics. On-farm employment is described in terms of the scale and characteristics of employment, along with local patterns of labour recruitment and management. This small study is appropriate to understanding local dynamics and prevailing employment practices. Examination of on-farm employment shows some of the limitations on the ability of the on-farm economy to create or even sustain employment.

Employment numbers and intensity

The quantity and intensity of on-farm employment is examined here in relation to agriculture within Weenen – including the SSFs relative to the larger-scale commercial farmers. The broad determinants and characteristics of agricultural employment see agriculture make a relatively small contribution to employment within Weenen.

Within Weenen, on-farm employment is significant for those who are employed, but makes a small absolute contribution to local employment. The numbers of workers employed are comparatively small. Extrapolating from average employee numbers in the district and 23 named large-scale farmers suggests a figure of approximately 300 full-time equivalent workers²⁰. This is a fraction of locally resident working-age adults. The Weenen, Ezitendeni and Impembeni census 'Small Places'²¹ (i.e. the immediate urban centre, African township and adjacent countryside) have a population of 7 586, of whom 3 334 are between the ages of 20 and 59 (viz. of working age, although this would include disabled adults). Agricultural employment in Weenen, therefore, absorbs less than 10% of the town's working-age adults.

While municipal data pegs unemployment at 33%, detailed analysis of census data suggests a (narrowly defined) 'employment rate' of 9.1% for the larger district (encompassing a more expansive area, including much of the countryside stretching to Estcourt) of 30 548 residents. 'Employment' in the Ezitendeni township is listed at a paltry 3.9%, but 9.1% across the four designated census zones making up the larger Weenen district. While the data lists the districts' proportion of individuals as 'unemployed' at 6.9%, the key statistic is 'Discouraged work seekers' (i.e. those who wish to work but have given up looking for work) accounting for 13.5% of the total population – a larger proportion than either of the preceding two categories. In addition, the category of 'Other not economically active', constitutes for over a quarter (26.5%) of the population, while 'Not applicable' accounts for 44% – a population that includes children and the elderly (i.e. those not conventionally expected to work).

The employment numbers contained in the case studies (see Appendix 1), quantify the scale of employment by each farmer. The extent of labour use or employment created varies by the size of the focal farming operations. A useful metric is, therefore, employment intensity, namely employment relative to farm size. While there are variations between the larger-scale commercial farmers, in this study SSFs are seen to generate proportionally higher levels of employment: approximately 300 person days of employment are generated annually, per hectare by SSFs, versus an aggregate figure of approximately 100 person days per hectare, per year for commercial farmers. Although the small sample size precludes a definitive assessment (and care was taken to impute all unremunerated kin labour, etc. used by smallholder farmers),

²⁰ This is a conservative figure that omits the likely smaller number of those employed by SSFs – due to the difficulty of systematically establishing the numbers of these farmers.

²¹ These are all the applicable census units, excluding the expansive uMtshezi zone that contains 21 636 people.

employment intensity appears roughly inversely related to farm unit size²². As will be suggested later, this also impacts on consumption-related expenditure in the RNFE, derived from agricultural wages.

In general terms, horticulture is amongst the most comparatively employment-intensive forms of agriculture, as horticultural production (especially harvesting) is complex and capital intensive to mechanise. In Weenen, producers are unable to embrace extensive mechanisation, due to the small landholdings, small volumes, and large variety of crops. While tractor-drawn implements to sow seed potatoes are commonplace, seedlings (such as cabbage) are hand planted and neither commodity is mechanically harvested. Weenen, therefore, presents a case towards the highest hypothetical pole of employment intensiveness. The fact that agriculture provides relatively limited employment even here, attests the muted scale of existing agricultural labour absorptivity.

The research was conducted in the aftermath of a significant (52%) rise in the minimum agricultural wage in 2013, following violent farm worker protests (in the Western Cape). The upward revision of the minimum wage elicited a range of responses amongst farmers nationally, that were echoed in the Weenen district. These include instating piecework, raising the output thresholds required in piecework, hiring a smaller pool of workers but giving them a wider array of responsibilities (i.e. a more multifunctional labour force) and even exit from labour-intensive crop production altogether. Many farmer responses to the wage increase, therefore, entailed the reconfiguring of production, or alternatively exiting from labour-intensive crops (producers spoke of abandoning growing green peppers and onions). Yet these responses represented the deepening of existing practices: sharp rises in wage costs lent these impulses greater impetus, but were part of a pre-existing pattern of rationalising labour use.

In relation to the minimum wage, the Bureau for Food and Agricultural Policy (BFAP) counterpoises the pre-2013 minimum wage (R69 per day) versus the farm workers' demand (R150 per day), characterising it as a 'farmer's dilemma' versus 'workers' dilemma' (BFAP 2012). The arithmetic mid-point (viz. R105) presents affordability challenges for many farmers, yet is simultaneously inadequate for workers. Producers with soaring wage bills would be pushed into shedding more workers, while farm workers would still be amongst the legions of the working poor. Even the R105 a day (which became the minimum wage in 2013) earned by two workers secures less than the minimum nutritional requirements for a household of two adults and two children. This is South Africa's rural reality, where a third of children are stunted and three quarters of households are reportedly food insecure (BFAP 2012). So poorly paid is work on South African farms that it co-exists with vast pockets of hunger, undernourishment and extreme vulnerability. Finally, this also has significant implications for the extent to which expenditure of wages earned in agriculture can contribute to the RNFE.

Rising wage increases do not necessarily entail an end of agricultural production, despite the predictions for organised agriculture concerning the threat to enterprise sustainability that the rise in the minimum wage posed, and evidence from elsewhere, such as 'economic and social downgrading' in the West African cocoa value chain (Barrientos 2014). Steep rises in agricultural

²² A number of qualifications ought to be made regarding the paucity of agricultural employment in Weenen. Firstly, amid high levels of seasonal work, worker numbers are calculated to the equivalent of full-time employees. Secondly, this quantification of the absolute numbers and employment intensity reveals little of the quality or conditions of employment. Thirdly, agriculture's employment creation potential is defined within the parameters of the existing production system and horticultural commodities concerned.

wages potentially elicit a wide range of responses – some of which were documented in the Weenen – such as changes in production systems, systems of labour use, the implementation of mechanisation or even extraction of smaller profits. Alternatively, they may precipitate the ‘creative destruction’ of inefficient incumbents to be replaced, by the logic of the market, by more efficient producers.

The evidence for the impact of the 2013 minimum wage rise remains unclear. While anecdotal evidence suggests some jobs were lost, fuelled by solid commodity prices, agricultural employment enjoyed a minor uptick from its longer term decline. Hall 2014²³ attributes the absence of large-scale agricultural job losses to a number of factors, including: the inescapable reality of the need for some workers, the demand for skilled workers (e.g. in the export-orientated deciduous fruit sector), the fact that ‘easy’ gains from mechanisation have already been reaped, and marginal and inefficient producers had already exited the system. Existing producers may have also adjusted both their production systems and their expectations of profit.

On-farm employment: Sourcing and recruiting labour

With regards to the sourcing of labour, the Weenen farmers’ employees were all ‘local’ (operationalised from less than 10km away). There were few exceptions to this, such as half a dozen workers (permanent and casual) employed in Mr RS’s operations. Resident over 40km away, they were a residual legacy of a larger cohort of workers previously trucked in from the former Zululand; an erstwhile widespread practice in the district. Labour recruitment practices have, therefore, undergone marked shifts over time and become more locally focused and less paternalistic and management intensive. However, the current use of proximate or ‘local’ labour can disguise differences in practices of employee recruitment.

Local recruitment practices are coloured by the larger historical shifts in agricultural employment, and the Weenen area’s brutal legacy of late apartheid-era labour tenant evictions (into the 1970s). This contributes to white commercial farmers’ perceptions that employment relations are a source of political and social risk. Commercial farmers are consequently keen to minimise farm dwellers and limit employees. Furthermore, they do not simply wish to source workers; they desire the ‘right’ kind of labour – employees who are comparatively reliable, productive, trustworthy, compliant and even acquiescent. These efforts were evident in the use of a revolving pool of ad hoc workers (Mr SGF) and the desire to maintain continuity even amongst ‘casual’ workers employed. In these ways the relational dynamics of race and class continue to influence labour recruitment and relations on the ground.

Sourcing and managing labour is also bound up with both production decisions and social dynamics. Even among the small sample of case studies presented, highly varied practices were embedded in farmers’ larger management and production strategies, social positions and prior practices of labour management. In the Weenen district, there was no evidence of third-party ‘labour brokers’ (employment service agents). The reasons for this absence are not entirely clear, but may well be a consequence of the relatively small scale of production, the year-round production, and the absence of a history of migrant farm workers in the district.

²³ Citing C Patton. Few job losses despite big minimum wage increase. *Business Day*. 2 August 2013.

On-farm employment: Strategies of labour recruitment

A number of broader labour recruitment strategies are evident in Weenen. Amongst the commercial farmers these include maintaining a flexible 'pool' of intermittently employed workers versus retaining a small core of regularly (even longer-term) employees; while SSFs rely on remunerated employees, but also on complex forms of work by kin and on individuals accessed through social and location-based village networks.

Furthermore, while the mixed crop farming system, planted twice or three times a year, creates a relatively steady demand for labour, it does have seasonal aspects. Planting and weeding sees larger numbers of (typically women) recruited, but the largest annual spike in labour demand in Weenen is potato harvesting. This typically results in employee numbers on a farm swell at least fourfold over the course of several weeks (over 1 000 concurrent temporary employees²⁴) for potato 'lifting'. Moreover, with many producers simultaneously harvesting for the lucrative December holiday period, labour shortages are felt. Part of the contradiction of the Weenen's farm economy, and indeed the larger South African economy, is the simultaneous existence of labour shortages, alongside mass unemployment.

Amongst larger-scale commercial farmers, outside of the seasonal peaks of labour demand, there is a desire for a stable pool of so called 'permanent' workers (in other words, relatively constant – or at least known recurrently – employed casual workers). Some farmers (e.g. Mr SGF) actively summon potential or past staff from within existing networks of employees. Existing employees recruit others in response to employer solicitations. This is not a *modus operandi* specific to commercial farmers or agriculture – recruitment through worker networks has long been a characteristic of the southern African industrial workplace.

Mr SGF recruited his employees (for the farm and the trading operations) from a churning 'pool' of approximately 45 employees, 20–25 of whom he would hire on any given day. This arrangement also facilitates employees' engagement with (probably equally paltry) opportunities elsewhere. While farm workers work for a single employer intermittently, they seldom alternate between working for several different farmers. Farm work may be combined with other livelihood generation activities or bouts of outmigration, but the transition from one farmer employer to another is a decisive change.

In contrast, other farmers prefer a smaller core of regular, 'permanent', often 'multifunctional' employees. For instance, Mr DF disavowed the notion of having dedicated categories of worker (e.g. tractor drivers); workers were switched between a range of tasks and a consistent core of employees was retained.

African SSFs tend to recruit labour from their kin networks, or locally from the areas where the SSFs themselves live. For example, Mr SM hired employees from their villages (15 kilometres out of town), despite the fact that his landholdings were within the urban envelope, and easy walking distance (under 3km) of the local township. Similarly, Mr MN had a preference for employees from his village. Mr MN ventured that his fellow villagers worked better (i.e. harder). Kin labour is unevenly monetised, and accounts of whether payment was made (and how much) were unclear and contradictory, partially reflecting the social complexity of the exchanges, located within dense networks of entitlement and obligation.

²⁴ In Weenen, there was some evidence of school-going teenagers casually employed during the December potato harvest, in the school vacation, i.e. casual employment did not only involve 'working-age adults'.

To elaborate, children, or adult children (rather than wives) appear more likely to receive some remuneration. But tasks are also differentiated: teenage or adult children are unremunerated for easier or lighter tasks. More laborious work (hoeing, harvesting potatoes) is typically remunerated, and often entails the concurrent employment of other (non-kin) workers. Therefore, it appears more difficult for SSFs to have their teenage or adult children work out of a sense of social obligation if they toil alongside paid farm hands. Farmers' wives are generally less likely to be remunerated, but (possibly) benefit from 'enterprise profit'. In Weenen the dynamics involved in the minutiae of gender and intra-household resource allocation were difficult to capture. At least one (white) middle class commercial farmer respondent (whose wife maintained the farm accounts) expressed incredulity at the question, arguing his spouse was part of the 'household' that subsisted from the farm 'profit'.

Finally, it is also helpful to locate the above accounts of employment and labour recruitment within larger histories of employment. In this respect, two accounts of labour constraints are briefly presented here. The first is a case study of experiences of labour constraints in the past, the second is a case study of experiences of labour constraints in the present. They illustrate the intertwined commercial and social dynamics that can serve to mediate employee recruitment and retention.

Mr SGF's family were historically labour constrained (1970s–90s) due to the family's social and economic marginality in relation to other white farmers. In a conservative, Afrikaans-speaking district, social distance flowed from their outsider status, non-Protestant faith (and their late father's inability to speak either English or Afrikaans). Consequently, other white farmers displayed enmity and sabotaged their recruitment labour. Additional confounding factors included that the family's land had no resident farm dwellers on whom to make claims for labour, and marginal operations made it difficult to outbid for employees on the local labour market. It was only through the virtuous cycle of additional family labour supply (adult sons), rising productivity and expanded labour recruitment that these constraints lifted.

The case of Mr MT illustrates labour constraints in the present day. So severe was his inability to secure adequate levels of labour that he waited for the school holidays to hire the teenagers for potato harvesting. Mr MT employed an almost exclusively female workforce who performed not only women's work (weeding, planting seedlings), but also jobs regarded as men's, such as irrigation (moving and reassembling irrigation pipes, etc.). He explained his difficulty working with men in terms of their reluctance to follow his instructions and tendency to challenge his authority. This is intelligible in terms of Mr MT's status as a young black outsider: a manager (rather than owner of the farm) and his ambivalent position within local white dominated agrarian networks. He was caught between traditional African cultural mores of assistance and mutuality (providing employment), on one hand, and a commercial farmer's comparatively distanced and dispassionate labour relations, on the other.

These two vignettes underscore how employment is not just patterned by the equilibrium of labour market supply and demand, but also bound up with the historical evolution of labour arrangements, social dynamics and identities. The employers' social embeddedness shapes employment prospects and relationships. This also suggests that marked changes in the cohort of farmer-employers, even within current patterns dominated by larger-scale commercial agriculture, may be accompanied by unforeseeable and even idiosyncratic changes in on-farm employment dynamics.

Changes in employment practices

Changes in employment need to be contextualised against the longer-term trajectories. Accounts of labour and employment demonstrate evidence of longer-term changes. Consistent with national dynamics, these include the waning of large-scale, labour-intensive production, and the rolling back of forms of farm paternalism (Du Toit 1993; Du Toit and Ally 2007) and farms' 'domestic government' (Rutherford 2004). For instance, Mr RS described the manner in which labour sourcing strategies had changed. Prior to the mid-1990s his farm employed a peak of 200 employees with five managers. Labourers were recruited from the adjacent Zululand, 40km away. They were housed in gender-segregated compounds on the farm, and commuted home for the weekends. This arrangement was abandoned because of the high labour costs and the management burdens it imposed. In response to concerns about the tenure security legislation the compound was demolished – a common practice among white South African farmers at the time. Since Mr RS began leasing the farm over a decade ago, production has steadily changed to fewer labour-intensive crops, mechanisation has increased, and a smaller pool of workers is routinely employed.

While the steady decline in agricultural employment nationally is understood, it is helpful to underscore that it occurred in concert with changes in farm production systems. These are not simply the growth of mechanisation and abandoning labour-intensive crops, but entail greater use of agro-chemicals (herbicide, rather than hand weeding), leaner management (in the case of Mr RS, essentially shrinking to himself and a foreman), and novel modes of organising workers (smaller pools of workers, bifurcated into 'permanent' and casual). As will be suggested later, the 2013 spike in the minimum wage simply intensified many of these strategies, and variously included a shift to piecework (or higher thresholds for piecework remuneration) and inclination to have a smaller core of 'multifunctional' workers. In other words, the minimum wage hike intensified longstanding pressures on labour use and labour-shedding impulses.

Smaller-scale African farmers' labour use is equally complex, and has also shifted over time. It is a combination of longstanding labour arrangements and more contemporary forms of organisation. SSFs use a combination of kin labour, and remunerate labour recruited from within their proximate geographical locales (villages). As previously described, these exchanges are not evenly remunerated, and entail various kinds of traditional social practices and non-market logics. These dynamics and high levels of social embeddedness are not particularly surprising in relation to smallholder farmers. However, the kin- and village-based forms of labour recruitment exist alongside much more contemporary forms of labour organisation, such as the chicory co-operative.

Finally, while the use of independent contractors, often with specialist equipment, to perform specific tasks is known within agriculture, it is relatively uncommon in the district, even amongst the commercial farmers. (A minor exception is the small, one-tractor, ploughing services for African small-scale or subsistence farmers.) Instead, it is the co-operative's operations that involved the most elaborate forms of outsourced and indirect labour. Its complex production entailed (thus far un-costed) inputs for their members, and the provision various services and even some supplied labour.

On-farm employment: Job shedding

The case studies that point to the trajectories of agricultural job shedding are consistent with the larger national picture. Agricultural employment has declined from 1.6 to 1.8 million in the 1960s to under a million in the 1990s. It stabilised briefly until 2002, largely through the growth

in exports, but since 2002 to the present has followed a largely downward trend (Liebenberg, 2011). Declining employment has occurred in parallel with changing conditions of employment and the increased levels of precariousness and insecurity previously suggested. The larger trend is evident in agriculture, but may take on divergent patterns between farmers as they engage with at least three variables in their production system, namely: i) different modes of organising labour, ii) changes to fewer labour-intensive crops and iii) increased mechanisation. Within the focal research area, producers engage with these three variables.

In Weenen, there was a move towards fewer labour-intensive crops. Farming operations are already mixed, but maize and lucerne increasingly combined with horticultural production. However, more labour-intensive crops, such as onions or green peppers were unattractive and waning in importance. The third variable that farmers could manipulate, namely mechanisation, was equally constrained. While there are technical constraints (the heavier clay soils made mechanised potato harvesting difficult), the primary obstacle was the relatively small sizes of farm units that made the capital outlay unfeasible. The scale of operations demanded by mechanisation simply precluded it (see below).

Mechanisation and employment in potato production

A potato planter is a relatively affordable and uncomplicated implement that attaches to a tractor. Costing approximately R150 000, and manufactured domestically (South Africa) potato planters are fairly commonplace in many districts, including Weenen. However, in a hierarchy of mechanisation, a mechanical potato harvester is a substantial jump upwards. It is a large self-propelled machine capable of lifting the potatoes out of the soil and mechanically sieving out stones, soil and plant material. Potato harvesters are imported and cost from approximately R1.5 million upwards. Comparing the operating (capital and finance) costs of a harvester with the potential saving on labour costs is revealing. BFAP (2013) calculate a South African potato farmer needs at least 150ha under potato cultivation for the savings on labour to justify investment in a potato harvester. As Weenen producers are generally a tenth or fifth of the requisite threshold, none in the district made the jump to this scale of mechanisation. Weenen's producers remain compelled to continue to harvest potatoes in highly labour-intensive ways, and a large pool of casual workers is intermittently employed. However, if mechanical harvesting were to be implemented (through technical or organisational innovation, e.g. smaller machines, pooled equipment use, etc.), the equilibrium between farm scale and employment intensiveness would change – almost assuredly to the detriment of local employment.

Mechanisation in agriculture exerts pressure on all farmers to innovate or mechanise. When the equation swings in favour of mechanisation, it alters the constitutive rules of the game, and shifts the 'production threshold' (Aliber, 2013) for all. Hence, even producers who retain labour-intensive methods (i.e. are unable or unwilling to invest in the new production systems) are compelled to engage in a market terrain against those that have. In this way, technological change and mechanisation pattern the terrain for all producers (and their employees).

Labour retention

Amidst larger trajectories of declining agricultural employment and pressures to shed workers, farmers simultaneously sought to maximise continuity amongst their existing workers. Depending on the nature of their farming operations, they had different strategies. Mr DF retained a smaller cohort of casual workers who were, to some extent, multi-skilled, and shifted between tasks. This would retain the service of the same 'casual' workers over time.

For instance, Mr SF preferred to keep the casual workers who planted seedlings relatively consistent, to avoiding the learning curve and unreliability of new workers, as well as the associated management burden. In making production decisions and managing employees, a key balance was between numbers of workers and completion of a task. To obtain the optimal trade-off between completing tasks at an adequate pace, yet having a manageable supervision burden, following the increase to the minimum wage, Mr RS renegotiated the piece rate and set a higher threshold. Several particularly motivated or ‘fast’ workers completed their individual quotas in a truncated working day and then completed a second quota by the late afternoon. They earned twice the remuneration in a single day – for double the output. Piecework management technology was opening up differences between individual workers.

Instructively, Mr SGF successfully built the continuity into the pool of casual labourers he recruited by drawing from a larger, informal pool. This conferred the (bureaucratic) advantage of making their employment assume the fixed-term and discontinuous quality conventionally accorded to the definition of a ‘casual’ employee. The point is that, despite their impulses to shed labour, farmers remain acutely concerned with retaining the employees they need, and often do so with various strategies.

The conditions and quality of on-farm employment

This section considers the status and employment conditions of employees, and how these have changed over time. It is understood that a proportion of employees have changed over time, with the shift from permanent to casual workers; even if the label of ‘casual’ is a somewhat imprecise legal category (see below).

‘Permanent’ and ‘casual’ employees

While workers are widely described in terms of the nomenclature of ‘permanents’ and ‘casuals’, both terms have unclear de jure referents. To begin with, ‘casual’ is somewhat anachronistic usage. The Basic Conditions of Employment Act of 1983 (which excluded farm workers) defined casual labourers as working for three or fewer days per week. However, the revised act (1997) saw this term eliminated and the category significantly revised. Essentially, any worker employed for more than 24 hours per month (3 days) is entitled to the benefits and protections of the act (and the sectoral determinations promulgated by the minister). A fixed-term employee, or one employed for less than 24 hours per month is closest to the colloquial term of ‘casual’, although this employee is not bereft of the protections of the Labour Relations and the Employment Equity Acts²⁵.

An employee working for more than a cumulative 24 hours per month falls within the ambit of the Basic Conditions of Employment, Labour Relations and Employment Equity Acts and all of the provisions concerning statutory leave, retrenchment and requirement for contributions to unemployment insurance (UIF) are applicable to them. Working for more than 24 hours a month (approximately three days a month), automatically entitles an employee to these employment protections, legally indistinguishable from the popular category of ‘permanent’.

Within the focal research site, most commercial farmers had been occasionally subject to labour inspections. They generally kept the requisite written employee records and reportedly made contributions to the Unemployment Insurance Fund. Although fraught in light of the

²⁵ The veracity of the term ‘casual’ is confounded by its wide usage, and the fact that even the official sources use the term (in sectoral determinations, for example).

sensitivities involved, and varying between employers, it is difficult to discern the extent to which employees enjoyed all the other benefits (such as paid leave, paid public holidays, etc.) and employment protections (such as observance of disciplinary, remedial or retrenchment procedures). Several farm workers, for instance, indicated that they did not receive paid leave.

Furthermore, while elements such as UIF contributions are amenable to verification by labour inspectors, other provisions are more open to non-compliance. So, while 'permanent' farm workers would typically receive slightly higher wage rates, and be appropriately documented and registered for UIF contributions, the extent to which they enjoyed all the statutory employment benefits remains fairly unclear. Many employees were effectively 'permacasuals' or 'permatemps', regularly employed workers (viz. more than the statutory 24 hours a month) but engaged in precarious employment with comparatively weak workplace entitlements and protections.

The African SSFs are not as socially prominent or affluent as the larger-scale, white commercial farmers. None reported having been subject to inspection by labour inspectors. While several kept a written record of employees (such as Mr SM, who kept his in an old school exercise book, largely to facilitate payments) none registered employees for UIF. Accounts of work for SSF were frequently so intertwined with traditional mores, relations and social dynamics that it is arguable whether SSFs' workers were even viewed as genuine employees by either party. In the South African context, when the formal economy has long predominated, and the African poor have been absorbed into systems of commodified labour for over a century, popular imaginaries of 'employment' or a 'job' readily conflate it with working for the state or a white boss. Working for an African employer, typically for someone known socially, for low wages (or in-kind contributions) under informal conditions is far less likely to be understood as 'authentic' employment. It is partially for these reasons that compliance with the formality of employment legislation appears considerably weaker amongst the SSFs than larger-scale farmers.

Under these conditions, despite a gradual extension of employment protections and mixed evidence of enforcement, it is difficult to discern full compliance with employment legislation within the focal research. However, larger-scale farmers appear closer to attaining it, or to be incrementally approaching it. This pattern is noted by others and has broader implications regarding the relationship between employment and wages within agriculture and even elsewhere in the RNFE. In the trade-off between employment and wage levels, it may well be that small-scale agriculture offers the potential for comparatively high employment intensiveness, but is characterised by lower individual wages or conditions of employment. This is a tension with significant public policy implications, namely how to balance the quantity with the quality (including wages) of employment.

Wages

With regards to wages, there appeared to be varying, but generally high degrees of compliance with the revised minimum wage. However a caveat here is that understanding wage levels was dependent on respondent reports and beyond the scope of the study to systematically verify. Furthermore, and, in contrast, with other farming areas (such as export-orientated fruit and wine production areas) there is arguably more scope for non-compliance in a district such as Weenen, as its farmers are neither very large nor particularly prominent. They do not have human resources departments (where compliance can be easily vetted), and are not especially vulnerable to potential reputational loss if found to be non-compliant (versus exporters). Furthermore, judging wage levels was also made far more difficult by the adoption of piecework schedules of remuneration. Piecework is a technique to exact productivity gains,

manage and discipline labour, but also potentially serves to obfuscate wage levels. A common strategy for employers is to simply raise the minimum threshold required of workers. In the study, the use of piecework schedules was facilitated because neither of the focal commodities of potatoes or cabbages is particularly delicate or easily damaged by quick handling, nor subject to rigorous export-orientated grading – qualities that have conventionally served to inhibit the implementation of piecework remuneration within other commodity systems.

Judging wage levels in relation to producers who use kin or family labour was equally challenging. The wives of several of the farmers involved in the farming operations were not separately remunerated. They were part of the family or household that received the 'entrepreneurial remuneration' (although the precise terms of intra-household exchange were difficult to comprehend within the ambit of the existing research). At this level, understanding family members' remuneration was made difficult by the frequently porous boundary between the household and enterprise economy. Examples include the case of Mr LS's family workers cooking lunch for both kin and workers. This was the case even for the comparatively affluent commercial farmers, where resources and the supply of labour could easily transition between the two realms. Mr RS's wife did the farm accounts in the mornings at a rented office in an adjacent town, after ferrying the children to school.

Similarly, family wages were difficult to discern in Mr MT's description of his remuneration. Invoking his status as an unmarried, African man, his was the liege of his father, working on the 'family' farm, and he described receiving a small monthly stipend and having his modest living expenses covered. This stood in contrast to his father's narrative of salaries and profit shares. The precise nature and form of Mr MT's remuneration is perhaps less significant than the fact that it can plausibly be described and viewed in such varied ways. Each formulation positioning Mr MT as a particular kind of social and economic actor: the first a dutiful, traditional, filial subordinate, the second a profit-sharing manager.

For SSFs, the wage situation is generally different. They tend to use kin labour, but even with remunerated employees employment is neither very formal nor permanent. So, the likes of Mr LS used a combination of kin labour and casual labourers (typically paid weekly) and received some services delivered by employees of the co-op.

In the study, SSFs generally were characterised by less social distance from their workers. Kin frequently undertook the lighter tasks with no payment, or, in the case of children or adult children, were remunerated along with the conventional casual employees and there was a clear sense of 'waged' and 'unwaged' tasks. In addition, at least two of the SSFs had a female worker prepare lunch for the other workers, a non-wage benefit of their employment. This arrangement was unknown amongst commercial farmers, where the formalisation of labour relationships, with increased wages and commoditisation of the previous employment benefits (meals, transport, even housing) disappeared with the eclipsing of traditional forms of agrarian paternalism.

The SSFs employed fairly large numbers of people, especially for the comparatively small size of the area cultivated. So, while the SSFs created comparatively higher levels of employment, it was more poorly remunerated. Simply because small farmers create more employment, does not mean that they necessarily create more remunerated employment. This is a key trade-off in agricultural employment in general, and amongst SSFs in particular: higher levels of employment may well entail lower wages.

Social differentiation and employment

This section briefly considers social differentiation within the workforce and in relation to on-farm employment. As the patterns of social differentiation are very different for commercial farmers and SSFs, they are discussed separately. However, what they do share is a measure of social differentiation within the workplace, which is often patterned by the familiar South African social stratifications of race, gender, class and age.

On commercial farms, the occupational hierarchy of the entrepreneur-operator, typically the farmer, hierarchy is typically overlaid with race. So commercial farmers are usually (although not exclusively) white; the next tier customarily consists of white or Indian farm managers or supervisors (typically in the larger farming operations, when they existed); the next tier, following the occupational and racial hierarchy redolent of much of South Africa's twentieth century history, consists of African supervisors ('indunas') or semi-skilled employees (such as tractor drivers); followed by cohorts of 'permanent' and, finally, 'casual' African labourers.

In Weenen, these vocational categories were not rigidly defined. On the district's comparatively small farm units a farmer, 'manager' or supervisor' could be relatively hands on, undertaking tasks, such as tractor driving, machines repairs, etc. According to this occupational hierarchy, several of the commercial farmers had a history of having started out as supervisors or 'managers' under previous owners, while Mr SGF's siblings similarly served a long period of informal induction into the work of farming within their family. Only two of the respondents (Mr DF and Mr MT) had formal agricultural training. Finally, despite a large number of foreign national entrepreneur shopkeepers in town, there was no evidence of migrant labour or the employment of foreign nationals on any of the farms.

The depth of social differentiation on the farm relates to scale (encompassing size, management and supervisory burden). Hence, even though commercial farmer Mr RS described his close supervision of field-based workers, as (in his own ironic words) him being his 'own *induna*', he employed a farm manager. In contrast, Mr MT, on a smaller operation, had a flatter hierarchy because his smaller workforce required less supervision.

At the lower tiers of the occupational hierarchy, African workers were far from homogenous within the focal research site. A few of the permanent employees had semi-skilled employment as tractor drivers, machine operators or minders (of the potato sorting machines, or the dryers that ran around the clock), workshop assistants or general shop workers (in the case of Papadopoulos Trading). These typically involved comparatively higher levels of remuneration and training (up to double the statutory minimum, but still entry wages in unionised industry or a middle class existence). However, the research setting was notable for there being two or three such individuals in the employ of most commercial farmers. This group of employees amounted to a pool of, at most, 50 individuals within the entire Weenen district. Most employees were unskilled, paid close to the minimum wage, and received very uneven degrees of workplace benefits and protections, especially the 'casual' employees.

Of significance, too, is that fact that amongst the bulk of African workers employed by commercial farmers, there appeared to be limited evidence of, or demand for, more highly skilled workers. Most workers had low levels of literacy and, typically, very poor Afrikaans or English language skills. The latter are virtual prerequisites (and therefore formidable barriers to entry) for employment in the formal economy. Listening beyond their racialised and elite perceptions, many commercial farmers lamented the low skills of their employees. However, when questioned, they were uncertain as to whether they would hypothetically be able to offer

higher wages to more highly skilled workers. Furthermore, even if they were able or willing to offer higher wages, it is questionable whether they would even be able to recruit commensurately skilled workers. Elsewhere, evidence from South Africa's deciduous fruit exporting industry suggests that it is difficult to find skilled workers, despite widespread rural unemployment (Barrientos and Visser 2012). The higher skilled often migrate from rural areas to better remunerated, more secure and prestigious work elsewhere. Much of South Africa's problem of unemployment, including in agriculture, is not simply an absence of jobs for the jobless; rather it is the wrong kinds of jobs – a paucity of jobs for low-skilled workers. Finally, and by way of a caveat, despite the low availability and (seemingly) demand for skills at present, this is not to suggest that this is an immutable state of affairs. Substantial changes in production systems could potentially catalyse changes in the demand for skills.

Finally, there is a gendered dimension to social differentiation. Many of the lowest tiers of agricultural labour were dominated by African females. Both farmers and other employers, such as seedling growers, often vaunted the superior dexterousness and care that women (as opposed to men) reportedly demonstrated. Gendered conceptions of occupation were often firmly held, especially in the countryside. So the Umbumbano Co-op, likely motivated by the imperatives of its multiple development-partner funders, trained a number of African women as tractor drivers. This was unprecedented and variously elicited rancour, endorsement, bemusement and commentary within the district, even months after first implemented. Gendered conceptions of occupation were also evident in Mr MT's female workers, who grumbled of having to do nominally 'male' jobs. Yet these tasks (admittedly on cursory examination) did not appear discernibly more drudgery intensive than much traditional women's work (full days of digging, weeding and harvesting). The women's complaint may well reveal less about the laboriousness of the work, than be a response to the violation of the gendered norm.

While issues of social differentiation amongst the SSFs invoked many of the same distinctions between age, gender and class, they played out in different ways. The SSFs had much in common with each other: they were older men with shared histories of labour migration and urban employment. Many were well respected, and both Mr SM and Mr MN had two wives and large families. They were dignified, authoritative, Zulu patriarchs, and commanded much social authority locally. Similarly, their ability to make claims on the labour of others, such as children (teenage and adult) and wives partially pivoted on these qualities.

There may be a tendency to see the gradations of social stratification exclusively in term of race or demography. In this study, there was, however, differentiation patterned by class, even among SSFs, such as how Mr MN brought in others to cultivate 'his' land and entered into arrangements with other African men to access land, paying them not in cash but in kind (ploughing, transport services, etc.). While it remains unclear precisely how Mr MN came to control the land reform farm, what is certain is that he effectively did, and that this reflected (and reinforced) his power and local authority. Finally, there were occasional inversions of deeply entrenched stereotypical hierarchies and radicalised scripts of the South African countryside. This included a white farmer, Mr RS, renting land from absentee black urban owners or black farmers reporting varying degrees of assistance from white farmers.

6 Upstream (input) production networks: Employment and livelihoods

In the earlier discussion of the case studies (section 3) upstream production networks were alluded to, but are described in more detail in what follows. A number of common characteristics can be foregrounded. Within the focal Weenen area there are comparatively few examples of local input supply. Local procurement of agricultural inputs are marked either by comparatively small quantities (e.g. from Weenen Agri), or by mechanical services provided outside of formal dealer networks (independent mechanics). For the most part the supply of agricultural inputs into both Weenen's horticultural and beef production networks is characterised by a spatially extensive pattern from more distant locales (see Appendices 2 and 3 for examples of horticulture). Although there are ostensive differences in the input supply networks accessed by small- and large-scale farmers, these differences pertain largely to the first set of linkages from tier 1 to tier 2 entities. However, while the two types of farmers generally have different sets of immediate intermediaries, successive tiers of their input networks are similar. SSFs ultimately procure inputs from the same networks as larger-scale farmers (see Appendix 3).

The nature of upstream production linkages has implications for the RNFE and the employment it generates, or prospectively can generate. In what follows upstream input networks are discussed for the larger-scale commercial farmers, and then specifically for SSFs.

Determinants on upstream input linkages

The determinants and influences on upstream input linkages are described in what follows.

Historical patterns of spatial development

Larger patterns of the historical development of agricultural and settlement patterns have influenced production and input networks. The larger national spatial context includes the key transport artery of the N3 highway (running past Estcourt) linking the continent's busiest port in Durban to the industrial heartland of Gauteng. It bears the palimpsest of the nineteenth century transport routes over the escarpment onto the plateau of the interior. The 'mineral revolution' of diamond and gold mining on the industrial Highveld, catalysed industrialisation, conflict and the early twentieth century formation of a unitary South African state.

Present-day Weenen is rooted in the historical antecedents of nineteenth-century colonial expansion and early settler agriculture. Against this backdrop, the towns of Winterton and Bergville (to the west), and Greytown (to the east), are where many Weenen producers' commercial links developed. These sites emerged as rural service centres to meet the demand from their surrounding farming communities. Weenen's post-war decline is attributable to its small producers and landholdings, which saw it lack the agglomeration of demand to drive the emergence of similar suppliers and a virtuous cycle of local growth. In these ways the larger historical context has set the broad backdrop for the larger economy, as well as present day livelihoods and employment in Weenen.

The nature of the specific agricultural commodity under production

The second determinant on the development of upstream inputs and their patterning and distribution pertains to the nature of the agricultural commodities and their associated systems of production. For instance, seedlings are typically grown within the region to maximise their adaptability to local climatic conditions; hence seedling growers tend to create pockets of regional employment. Similarly, seed potato production is undertaken in a specific region of KZN (Kamberg to Nottingham Road), due to the fact that the cold local microclimate retards the summer resurgence of aphid and other pest populations. In these ways, climate, plant physiology and the pragmatics of production shape the existence of the input linkages, and ultimately local employment opportunities. Employment numbers are not only comparatively high for intensive, irrigated horticulture, compared to many other forms of agriculture; they are similarly high for its ancillary seedling growers.

The requisite inputs for the agricultural commodity under production

The nature of the requisite inputs and systems of production for the commodity produced is a third constitutive category shaping the supply network. Input production systems rely on varying levels of capital, economies of scale, and institutional and technical complexity. So seedling production or the independent mechanics generally require less of these elements than, for example, the manufacture of machinery or agrochemicals. The latter demand higher degrees of technical input and high levels of intellectual property, and are nested in regimes of statutory testing, homologation, certification and registration²⁶. Hence, the latter categories of inputs are, obviously, more likely to be consolidated outside of any given farming district (in this case Weenen), as are the employment and local economic multipliers associated with them. But more pointedly, the nature of the inputs also patterns the characteristics of local distribution networks. Networks are shaped by explicit regulation (e.g. safety and environmental regulation of agrochemicals or veterinary products) along with market structure and practices. For instance, the latter see capital-intensive agricultural machinery sold on an agency basis, via dealers with geographical exclusivity (thereby profitably sustaining dealer workshops). Market dynamics mean that high levels of concentration in the South African economy see much input supply dominated by small numbers of powerful lead corporations (in seed, agrochemicals, machinery, fertilizer), virtually all of which are domiciled elsewhere, nationally or internationally.

Configurations of the socio-political context

The patterning of the input supply network is, fourthly, shaped by socio-political configurations, including the actions of the state, and by larger regulatory and governance contexts shaped by the state. South Africa's political imperative of racial redress finds expression in both the public and commercial sphere. It undergirds support for small farmers and initiatives, such as the establishment of the local chicory production co-op. Within the focal research context, SSFs receive inputs either through the provincial Department of Agriculture's extension officers or as members of the Umbumbano Chicory Co-Operative (funded by Nestlé, under the banner of AgriBEE). These programmes and projects are nested within a broader politics of transformation and post-apartheid racial redress, and three points are made regarding them.

²⁶ This is not to say these considerations are absent in seed production, just that they are ubiquitous in fabricated or manufactured inputs.

The first is that these interventions often follow the high road of agricultural modernity: high input agriculture, mechanisation, and (in the present case) locally unknown and technically demanding chicory cultivation. The implicit ambition is frequently to grow a cadre of commercial, large-scale farmers, which shapes the choice of commodity and production system.

The second point is that, while the provision of inputs through these sources is doubtless of benefit to the recipients, it does correspondingly reduce demand for them locally. State procurement aggregates demand, which is serviced by formal suppliers large enough to tender for state supply. It is difficult to speculate what the counterfactuals to this arrangement might be; if less concentrated local demand would simply be served by established market incumbents, or whether new entrants would potentially enter input supply networks. What is certain, though is that aggregating input supply in this way reduces the potential for local demand and likely mitigates against the growth of less concentrated local enterprises and supply networks. This dynamic has potentially deleterious consequences for local employment.

A third point is that existing larger-scale (predominantly white) farmers are essentially outside the circuits of state-supported agricultural extension. Not only has publically funded agricultural R&D declined for several decades; the political imperatives of racial redress see existing services directed at 'emerging' (African) farmers. Whereas smaller-scale African farmers access technical expertise both from the state and (albeit piecemeal) from the private sector, larger-scale commercial farmers depend almost exclusively on the private sector. Technical expertise is provided by sales and technical staff affiliated with seed or agrochemical companies. However, this provisioning of inputs has implications for larger input supply networks. It entrenches existing incumbents, many of whom are comparatively lean and 'productive' (viz. incur least possible labour costs) and typically (with a few exceptions) target larger-scale commercial producers. This sets the template and concomitantly erodes the opportunity for smaller local suppliers, or suppliers specifically targeted at smaller-scale farmers to emerge. It potentially undercuts the viability of these groups, and ultimately the employment they may create.

Knowledge and information brokering

A fifth determinant of input supply networks relates knowledge, innovation and research accessed by farmers. The paucity of state agricultural extension services for commercial farmers, suggested in the preceding point, means that private sector agents, intermediaries and sales representatives are key service providers. These individuals are important 'knowledge brokers' for commercial farmers. Many sales representatives have formal technical agricultural qualifications (often a vocational requirement). The (Winterton) FAC agent is a trained agronomist, and like many involved in 'crop protection' liaises regularly with his clients. This consulting and technical assistance is driven by commercial imperatives, and satisfies a local demand for technical inputs. Yet these arrangements serve to pattern the distribution and deepen the influence of existing commercial input supply networks. They also raise the question of how these technical and knowledge brokering functions reproduce the status quo, in a deregulated, large-scale, capital- and input-intensive agricultural context. The 'privatised' and market-led nature of these services and this expertise also strengthens the hand of those providing it, and provides a potential barrier to new participants, enterprises and employment within agricultural supply networks.

Collective action and exercise of agency

Within the focal research area there is evidence that input supply networks are influenced by the agency and co-ordinated action of various economic actors, including the farmer-producers themselves. A lucid example of this was the Weenen Agri supply store, reopened with local (farmer) capital and the informal undertaking of the district's farmers to support it. The rationale for this was the store's importance in local supply networks, and deleterious consequences of its closure. The store's reopening created (albeit modest) levels of employment in local upstream agricultural input supply within Weenen. This entire episode is significant for the manner in which collective organisation very deliberately re-instated this node within local input supply networks. Some limited rural non-farm employment, directly servicing agriculture, was, therefore, created through this informal social compact.

The continuous cost price squeeze

A final determinant on input supply networks is the ongoing cost price squeeze faced by producers. The longstanding pressure on input supply costs, and inability of farmers to readily pass these onto buyers, elicits a range of different strategies on the part of producers. It shapes how farmers order their production systems, as well as source and use expensive inputs within it. A key cost for farmers (typically their largest or second-largest cost) is labour, driving the imperative to maximise its utility and control its cost.

Cost pressures often elicit two sets of responses within the production system. Firstly, producers seek to source inputs as cost effectively as possible, such as buying inputs in bulk directly from manufacturers (e.g. fertilizer and diesel) – thereby bypassing local suppliers (or potential local suppliers). Secondly, farmers ceaselessly engage in practices of constant optimising of their production system, to reduce their reliance on expensive inputs. Examples of this are numerous and include experimenting with alternate regimes of fertilizer application (adopting low-input 'natuurboerdery', in the case of Mr SGF), or repurposing or reusing waste (such as feeding vegetable harvest discards to cattle, or SSF Mr LS sourcing manure for his fields and reusing discarded bottles for his milk). Input suppliers, hence, transact with farmer-clients who continually innovate to lower their consumption of inputs, which, in turn, transmits these pressures to upstream suppliers. This results in suppliers that are comparatively lean and labour 'efficient', often with little 'fat' in the larger input networks.

Upstream linkages and SSFs

The nature of upstream input supply linkages in relation to SSFs warrants specific discussion. With regards to intermediate inputs, the SSFs included in the research source many of these inputs from the same sources as larger-scale commercial farmers; although, in some cases, the first tier intermediary was frequently an agent or retailer targeting the small or emergent farmer market. However, the tier 2 intermediary, store or agent would source the inputs (fertilizer, seed, equipment, etc.) from the same dominant intermediate input suppliers as those accessed by commercial farmers.

Key examples of tier 1 entities servicing the small-farmer market include Premium Crop Seedlings, Imbewu Agricultural Supply Store and FarmSave. The case study of Premium Crop Seedlings revealed how, alongside larger-scale farmers, the firm developed the niche of supply to small-scale African farmers in high potential ex-homeland irrigation schemes (through targeted efforts, such as a demonstration plot, and practices of aggregating orders and

deliveries). The Imbewu Agricultural Supply Store in Greytown similarly targeted small-scale African producers. However, some of the tensions inherent in small-scale agriculture undertaken in a larger context dominated by large-scale farming were evident in the prosecution of the proprietor (under the Registration of Fertilizers Act 36 of 1947, revised 2012) for decanting fertilizer into smaller packets, better suited to the needs of his customers.

Yet in all of the above cases the enterprises concerned invariably sourced their inputs from the same suppliers as larger-scale farmers. For instance, in these cases the agricultural supply store and seedling grower sourced seed and agrochemicals largely from the same large firms as the large-scale commercial farmers. In other words, smallholders and SSFs were not linked into fundamentally different or parallel input supply chains, beyond the very first set of linkages to suppliers. The SSFs in the study were not located in dissimilar supply networks, even if they accessed these through a first-step supplier, node or intermediary different from those of commercial farmers.

SSF input supply: Networks, characteristics and the state

A number of specific points need to be made regarding SSF input networks. The first is that, when they engage with fundamentally similar input suppliers as large-scale farmers, they often do so on different terms. For example, large-scale farmers generally purchase agricultural inputs, such as agrochemicals and (especially) fertilizer, from the local Weenen Agri store only if their needs are urgent or they have a small deficit to make up. The bulk of their requisites are sourced directly from a fertilizer company, or an agrochemical agent, so that they benefit from favourable prices or discounts on large volumes. In the focal study area, if a commercial farmer ordered several tons of fertilizer from Weenen Agri, the store would, in turn, order it from the same supplier, anyway, secure the order (without the benefit of a trade discount) and add their margin. The circumstances under which large-scale farmers would procure (more expensive) fertilizer in this way is if they were cash-flow constrained and wished to use the store's favourable payment terms.

Cultivating on a smaller scale, the SSFs sourced directly from the Weenen Agri (or the likes of Imbewu, or FarmSave). This was partially an issue driven by scale, as modest volumes either made direct procurement unfeasible or the associated savings inconsequential. A small price premium on a few bags of fertilizer is, in absolute terms, smaller, and easier to accept than the same premium over the 30 or 40 tons of the same product. Scale also plays itself out in another way: in the fact that transacting across distance requires some degree of administrative and financial formality. Although the SSFs all had prior work histories of labour in the formal economy, the act of accessing distant supplier networks demanded conversing telephonically (usually in English or Afrikaans), making payment via a bank deposit at a bank (in another town, as Weenen has no bank) or an electronic funds transfer, accessing fax or email facilities to send proof of payment, and negotiating transport (with a third party) from a distant depot. The rigmarole and transaction costs of this exchange make it unattractive, and even irrational, for many small farmers.

In this sense, scale therefore relates to both inputs procured across space and forms of administrative, bureaucratic 'distance' from systems of formal commerce. This echoes analysis that identifies the key threshold many encounter in South Africa's informal sector when going beyond face-to-face transactions or transaction with 'known' parties. For those in South Africa's informal economy, their lack of administrative formality and 'bureaucratic legibility' (e.g.

company registration, VAT registration to claim rebates, bank accounts, etc.) is often a key barrier in accessing more formal or distal markets or suppliers (Philip 2010). In this context, it made far more sense for SSFs to procure these inputs via local Weenen Agri or a similar supplier. It significantly also suggests farmers of this size would potentially be more inclined to do so than those of a larger scale – with potential implications for local employment.

The second point concerning SSFs is some evidence of differences in what they sourced, relative to commercial farmers. Informants servicing this market (including Premium Crop Nursery and Imbewu Agricultural Supply Store) indicated SSFs generally favoured lower-cost Open Pollination Variety seed over higher-cost and higher-yielding hybrid varieties. Although this was not a universal proclivity amongst all smallholders, those that market to them readily described this tendency. The SSFs' desire to minimise their cost outlay partially reflects their capital constraints, but also their risk aversion, should the crop fail. For many SSFs their primary concern was for predictable market sales and some own consumption. Tolerably low costs and reliable yields would therefore trump high costs, complexity or possibly requirements for additional inputs demanded by high-yield or genetically modified organism (GMO) seed. In their calculus of risk, reward and return, SSFs frequently favour the lower risk (and lower return) option.

The third point regarding SSFs is that some in the Weenen district, Muden and Tugela Ferry districts received inputs from the state's agricultural extension services and one SSF (Mr LS) received high levels of input from the state-supported Umbumbano Co-op. Many of these inputs were not supplied on a cost recovery basis, but rather at no or low cost. (The co-op was supposed to ratchet up cost recovery over time as part of its 'developmental' mandate). Although the co-op was to focus on chicory, difficulties in establishing chicory production saw it attempt to tide over their members with cabbage and potato inputs.

This support from the state, although somewhat erratic and not always optimally timed does, however, as already suggested, make local African SSFs less prominent customers in local input supply chains than they might otherwise be. Many input suppliers and their sales staff place considerable effort into servicing large customers, commercial farmer and the resourced co-op and into tendering for state contacts for the supply of these inputs (such as mechanisation or agrochemicals and fertilizer). In other words, support for SSFs by the state aggregates much of their demand for inputs elsewhere, reducing it at a local level. This potentially has adverse implications for the local production linkages and economic multipliers and employment generated by the SSFs through their activities.

In this way, developmental interventions are both opportunities and potential threats to input suppliers, and they shape input networks. An example was provided by a co-owner of Premium Crop Seedlings, in relation to an agricultural development project that mooted establishing its own seedling nursery. During a 'study tour' of the group to his nursery he warned that the development project could force him to retrench up to 15 workers. It is beyond the scope of this study to adjudicate the precise veracity of these claims, yet the point is that the market for the supply of inputs is finite. Developmental interventions that move into this space potentially compete with private sector interests, and may well impact on their employment. To acknowledge this point is not to take a position with regards the primacy of the market, but rather to acknowledge some of the key determinants on employment in a market context.

To recap, the SSFs are not integrated into a different, more informal set of input markets; they are integrated into the same agro-food system. They source inputs from essentially the same value chains as commercial farmers; even if the first tier of intermediary, agent, broker or retailer is different, the subsequent tiers of these networks are largely indistinguishable from those accessed by commercial farmers. Secondly, through various routes the state plays a key role as a source of inputs for SSFs. While this doubtlessly aids their production, it undercuts the SSFs' sourcing of agricultural inputs at a local level, and prospectively, the development of a greater diversity or density of suppliers. Finally, due both to the relatively small numbers of SSFs, and the means by which they access inputs (both from the state and via the market), the prospects of them generating substantial changes in input supply networks under current conditions appear remote. This has implications for employment within the RNFE (and is discussed later).

Conclusion: Input supply networks

To conclude this section, a number of points ought to be reiterated. The first is that, within the focal research area, and much of the South African agro-food system, input supply networks for key commodities are highly concentrated. In relation to Weenen producers, these input suppliers are powerful, 'efficient' and comparatively 'lean' (i.e. employment). Key inputs, seeds, fuel, agrochemicals and fertilizers are all supplied by entrenched market players, some that are extensively diversified laterally (such as Pannar), or others, such as agrochemicals, fuel and machinery that have clear commercial synergies (agencies, distributorships, geographical exclusivity, etc.) to the largest of upstream producers. This is not to posit that these conditions are immutable, or that new entrants cannot emerge; but it is to suggest that within current networks are frequently large, powerful existing players that occupy specific market niches – creating limited space for new entrants. Current configurations of powerful, concentrated and comparatively 'lean' input suppliers have important implications for the levels of employment with the local RNFE.

7 Downstream (output) market linkages: Employment and livelihoods

In the earlier discussion of the case studies (section 3) downstream (output) market linkages were traced and described. In the present section these are reflected on in more detail. Within the focal Weenen context, downstream output market networks are relatively distinct for horticulture and beef. With regards to horticulture, downstream output market networks are marked by a wide diversity of outlets and buyers. Buyers are both large and small, within the formal and informal sectors, and variously spatially proximate and distal. Output markets are not only diverse; they are also variable and seasonal. This stands in contrast with the upstream input supply networks (discussed in the previous section), which are typically more constant over time, and in the South African context frequently consist of comparatively large formal sector enterprises.

In the context of these differences between up- and downstream networks, there is more evidence of small-scale, local and informal sector employment within downstream output networks. For instance, within Weenen the upstream provision of agricultural inputs directly accounts for the employment of approximately ten people (co-op staff, a few self-employed mechanics). This stands in contrast to several dozen traders, vendors, retailers, shop-employees, intermediaries, bakkie transporters, etc. associated with downstream output markets. There is evidence of both small- and larger-scale farmers distributing into these local markets. In this way, locally embedded downstream markets are more likely to generate local linkages, multipliers and employment than upstream inputs.

With regards to the beef value chain, there are both similarities and differences with horticulture. In the focal study area, within downstream beef commodity markets there was evidence of both formal and informal buyers – from both within the immediate Weenen district and far outside it. However, downstream beef output networks were characterised by an important difference vis-à-vis horticulture. Individual players could, at various points in time, be suppliers of cattle (viz. upstream input suppliers) or cattle buyers (viz. downstream market networks). In this way the beef commodity chain has a fluidity of buyers and sellers, categories that are normally relatively fixed in relation to horticulture. This is partially attributable to commodity characteristics: horticultural crops are cultivated in a fixed location and highly perishable, demanding fast and direct routes to market, whereas live cattle can be repeatedly exchanged and transacted.

The scale of employment and livelihoods created within downstream output linkages cannot be adequately understood without attention to buyers and markets. Not only are output markets different for individual agricultural commodities (viz. cabbages and potatoes), within the research setting farmers access a diversity of buyers and markets. However, the buyers of horticultural commodities are predominantly located in the small-scale retail or wholesale trade (rather than being chain supermarket buyers).

In the study area, cabbages entered into downstream output networks via three predominant groups of buyers. The first were farm-gate sales to 'bakkie buyers' (viz. informal traders), the second were independent supermarkets (predominantly Aheers in Greytown), and the third was the local wholesaler, Papadopoulos Trading. In contrast, potatoes grown within the district were

distributed further geographically: they were sold via the Fresh Produce Markets (predominantly Pietermaritzburg FPM), with a much smaller proportion sold directly to the informal sector bakkie buyers.

Neither commodity was sold to agro-processors. Cabbages are primarily sold fresh as they offer limited potential for processing, whereas potatoes in the Weenen district are grown at an insufficiently large scale to be viable to processors. Processors, such as frozen food and snack makers typically contract with potato farmers producing over 150 to 300 hectares – ten times the scale of an average Weenen producer.

Downstream markets and buyers

Within Weenen the immediate categories of buyers include informal farm-gate bakkie buyers, independent supermarkets, a local wholesaler, and the National Fresh Produce markets (usually the Pietermaritzburg FPM). However, even within these different categories, buyers are heterogeneous. The buyers and the scale of employment associated with them are described in detail in what follows.

The bakkie buyers (such as the two discussed in the case studies) are a highly diverse group, a reality belied by the unitary label of bakkie buyer. They are generally small-scale survivalists, who trade from 'stalls' in static locations (in town or from their own village or township homes), or vend from the back of the bakkie (typically in town). Others effectively work as intermediary traders, selling produce on to other shops, stalls and even independent supermarkets. Finally, the category of bakkie buyer includes owner-drivers (or paid drivers) where the vehicle is used by others to transport stock procured by them. This makes these 'bakkie buyers' informal transport contractors, rather than buyers per se.

Bakkie buyers are a mainstay of the cabbages distribution network in Weenen. As with many informal businesses, they are generally owner-operator enterprises. In common with several SSFs, many bakkie buyers are African men with histories of formal urban labour market employment, who commence trading with their accrued skills and savings after their rural return. It is difficult to exhaustively quantify these highly mobile buyers, but they likely number in the region of 30 regular buyers.

The second category of buyer is wholesalers, such as prominent local wholesaler Papadopoulos Trading (the subject of a detailed case study). This enterprise has a small local retail and much larger wholesaler component. The firm distributes produce to other downstream buyers, including other wholesalers, small retailers, independent supermarkets, food-service industry (viz. school feeding scheme) and even national FPMs. In the study, in 65% of transactions, Papadopoulos Trading physically handled the produce, usually on consignment (but in a minority of cases bought it outright). In 35% of cases, they brokered transactions, where buyers collected produce directly from the farmer. In the former transactions, Papadopoulos Trading acted as a wholesaler; in the latter case it fulfilled a market agent function. Papadopoulos Trading is, therefore an enterprise that straddles the categories of retailer, wholesaler and market agent, engaging with producers in transactions with various combinations of risk and reward.

The sibling co-owners of Papadopoulos Trading and the adjacent farm earn a living that supports their middle class lifestyle and consumption patterns. Discerning employment levels in Papadopoulos Trading was confounded by the sharing of staff with the farming operations, but amounted to three or four low-waged employees daily. (The farming operations typically employ five times this number.)

The third category of market is the national FPMs: particularly the market in Pietermaritzburg. A large portion of the peak potato harvest might be sold via the FPMs, whereas, in contrast, a small number of cabbages are likely to follow this route to market. Farmers seek to avoid the FPM unless prices are very favourable, in order to avoid the associated commission and transport costs and uncertainty (including the risk of perishable merchandise remaining unsold). Not only does the Pietermaritzburg FPM (which is run by the Msunduzi municipality) employ approximately 50 staff; it houses several dozen staff of market agents and ancillary workers, such as drivers, etc. It is also a site for the procurement of fresh produce into informal sector markets, often by small-scale survivalist vendors.

Independent retailers continue to source fresh produce through the FPMs, even if they have waned in importance since the mid-1990s, due to chain supermarkets increasingly sourcing directly from producers. FPMs have also been characterised by underinvestment, moribund infrastructure and managerial shortcomings (under often beleaguered local municipalities). Cumulatively, these factors reinforce the tendency for retreating buyers and fewer sellers. This decline has seen stagnation in the volumes through national FPMs, despite growing domestic demand. The employment associated with downstream output networks has, therefore, not been in the FPMs.

The fourth and final category of buyers is independent local retailers and supermarkets. The primary buyer in relation to the research site was Aheers supermarket chain based in Greytown. It was the only supermarket that Weenen producers sold directly to in notable numbers. Aheers source much of their produce (several tons daily) directly from farmers surrounding Greytown (i.e. not just Weenen), on a spot market basis. Although commodities produced by Weenen farmers find their way into other supermarkets, they seldom do so in direct transactions, as is the case with Aheers. Operating the largest supermarkets in Greytown, Aheers is a lucrative enterprise for its owners. It employs 300 people (reportedly paid the minimum wage for retail), of which the majority are subject to the precariousness associated with being employed via a labour broker.

Apart from Aheers supermarkets, the balance of produce that finds its way into formal supermarkets is either distributed via a wholesaler or, alternatively, the FPMs. Papadopoulos Trading supply fresh produce to several supermarkets, including the dominant, Muslim-run independent supermarket chain in Estcourt (though a self-employed intermediary). It supplies most of the produce sourced by a medium-sized franchise supermarket in Ladysmith, which, at the time of this research, employed 50 employees, and to which Mr SGF's family had kinship links. The multinational Spar group is one of South Africa's big four corporate supermarket chains, and distinctive for being exclusively organised on a franchise model²⁷. This allows stores the autonomy to procure centrally through the group, or independently at store level. Supermarkets of this size all reported being compliant with the minimum wage for the retail

²⁷ Both Woolworths and Pick 'n Pay have made forays into franchising stores, but these still constitute a very small proportion of their stores, and an adjunct to their dominant models of centralised, corporate store ownership.

sector. Although difficult to verify independently, their degree of formality, size and prominence would make non-compliance a risky and unlikely practice.

A final route from Weenen producers into the supermarket-dominated agro-food chain is via the FPMs (especially Pietermaritzburg), described earlier.

Weenen farmers and independent retailers

In terms of downstream linkages, the farmers in the Weenen district are on the periphery of South Africa's food system dominated by corporate, chain supermarkets. Their relative disconnection from it is attributable to a number of factors already described, and related to the historic decline of the Weenen district as an agriculture centre. Even Weenen's large-scale commercial farmers are comparatively small and marginal in relation to larger-scale commercial farmers (and districts) elsewhere. The latter have larger volumes and less constrained routes into the supermarket supply system. Moreover, the focal horticultural commodities are the relatively undifferentiated staples of potatoes and cabbages. Even Weenen's relatively niche crops, higher-value chillies or groundnuts (or, potentially, chicory) find their way into markets outside of the corporate supermarket chains. Finally, while supermarket supply chains largely bypass Weenen's producers, this has coincided with the absence of local (Weenen) supermarket hegemony. However, the recent arrival of Weenen's first (franchise, branded) chain supermarket may well herald the beginning of competition in output markets (viz. retail markets), against Weenen's incumbent vendors and retailers. This would be to the detriment of both the vendors and the farmers that supply them, with deleterious consequences for employment in these enterprises. While new retailers would hypothetically create some employment, all profit and surpluses would be rapidly sequestered out of the local RNFE.

The marginal quality of Weenen's producers, relative to those with easier access to the formal supermarket-driven food system, elicits a wide range of strategies for accessing alternate markets. It provides the backdrop against which other market opportunities and value chains are negotiated, accessed and created. The manner in which this happens, and analysis of the linkages, forms of production, and their associated patterns of employment, is germane for understanding the research project's core question: the impact of agriculture on the RNFE.

Downstream markets, employment and livelihoods

The focal farmers responded to their market context with several strategies and distributed their output to an array of markets. These markets were formal and informal; their buyers large and small, located far and near. Routes into market were, therefore, noteworthy for their diversity.

In schematic terms the producers variously moved up or out of the 'value chain'. They sought to move up the value chain by engaging in value-add activities. They sought to move out, or laterally, by accessing alternate markets or buyers, (either voluntarily or after being 'pushed out' of existing value chains). It is important to note that these strategies varied widely by commodity type and the proclivities and strategies of specific farmer-producers. The broad patterns are discussed in what follows.

Moving up the horticultural value chain

Two examples of moving up the value chain are provided by Mr RS's chilli production, and Mr SGF's family's efforts to capture value by vertically integrating their production into the wholesale trade. Moving up the value chain was facilitated by adding value (e.g. Mr RS's chilli powder), or downstream (through Mr SGF's vertically integrated wholesale). This is classic value chain economic upgrading: from low-value to relatively high-value activities. It occurred through better integration (such as taking on the wholesaler function), and also included aspects of 'functional upgrading' (i.e. taking on new commercial functions). Both were rare examples in Weenen of product upgrading within the value chain (Barrientos and Visser 2012).

Moreover, Mr RS's endeavours did not entail abandoning the fresh chilli market; instead he produced both variants. Chilli powder, with more favourable value and shelf life, is easier to store, transport and retain for favourable market prices. Mr RS consequently invested in keeping aged tobacco dryers running and purchasing a stone mill, and explored sourcing paprika to bulk out the high value powder. These value-added activities enhanced his productivity but also created low levels of additional employment.

Wholesaler Papadopoulos Trading sourced and sold fresh produce, from both within and outside the district. Growing in turnover over the last decade, the wholesaler rivalled the profitability of farming operations. There were synergies between the farming and wholesaler enterprise, which enabled the family to secure more consistent prices for their produce by better synchronising their supply to market demand, with less wastage. But the operations of Papadopoulos Trading had wider ramifications. It was a key (if not largest) sales intermediary in the district. While it generated comparatively limited direct employment (two to three co-owners, and a similar number of regular employees), it was patronised by many smaller-scale local retailers and vendors of fresh produce, and therefore indirectly contributed to the livelihoods of several dozen people in the Weenen RNFE. If, hypothetically, Papadopoulos Trading suddenly ceased to exist, both buyers and sellers of fresh produce would lose a key node in local horticultural distribution networks.

Diversifying into other horticultural value chains

Moving laterally into alternate value chains typically sees producers retain a similar position within a different value chain. This may entail the production of the same commodity, under similar terms, but for different buyers. For instance, while Weenen farmers were largely outside of the chain supermarket system, they intermittently supplied a (franchise) supermarket in Ladysmith and smaller quantities to a (privately owned) Estcourt supermarket chain.

Moving out of the horticultural value chain

Exiting a particular value chain was a course of action evident on the part of several Weenen farmers, for example, Mr RS sold chilli powder to independent spice merchants. Although Mr RS had moved up the value chain by producing chilli powder, he had been 'pushed out' of the formal value chain. This came after the 'Sudan Red' food quality scare²⁸ saw South Africa's largest spice brand, the Anglo-Dutch Unilever-owned Robertson's Spices seek out larger suppliers, reportedly for better tractability. Compelled to seek out alternate markets, Mr RS sold the chilli powder to the smaller-

²⁸ A 2005 UK-centred, international food quality scare, in which chilli and curry powders were found to be adulterated with carcinogenic colourants.

scale independent spice merchants and manufactures associated with KZNs large ethnic Indian community (at least 11 enterprises/individuals, most family business with low numbers of employees). His product was undoubtedly entering into production networks marked by far more 'local' and small-scale enterprise-based patterns of employment than it did a decade ago.

Finally, the heterogeneity of the downstream horticultural markets also revealed slightly counter-intuitive market trajectories, such as a large-scale white commercial farmer (Mr DF) selling the vast majority of his entire cabbage crop to informal (African) bakkie traders, while at least two of the African SSFs routinely sent their cabbages to a formal, urban-based Greytown supermarket. These crossovers between producers and markets echo findings elsewhere, such as Aliber et al.'s (2013) work in Limpopo in 2011 which found African smallholders supplying large quantities of produce to the local Spar (the world's largest supermarket chain by number of outlets), while the street hawkers sourced much of their produce from white commercial farmers in the district. Some independent retailers, such as Aheers procured locally; others, such as Macksons largely bypassed local production networks altogether. There is no necessary correspondence between the conditions under which a commodity is produced, the route to market it follows, and the associated patterns of employment.

Employment and livelihoods elsewhere in the horticultural value chain

To this point, the emphasis has been on the linkages from the tier 1 horticultural producers into their downstream networks. However, the case studies of downstream entities from tiers 2 and 3 reveal the diversity of downstream enterprises and, commensurately, their patterns of employment. These range from supermarket chains employing several hundred people to the small-scale, survivalist owner-operator bakkie buyers or informal sector vendors of food. Although their numbers are difficult to quantify, the significant point here is that unceasing local demand for food, and the comparatively low barriers to entry for informal retail, sees downstream output supply networks provide some of the most important sources of livelihoods and employment for the poor, particularly for African women, who are often the stalwarts of street-side vending and the prepared food trade. Moreover, these provide forms of livelihood marking compatible with the other social demands on African women, such as caring for dependents or directing perishable, unsold stock into household consumption. In the chronic absence of secure, better remunerated employment, the downstream agro-food system offers forms of (self) employment and livelihoods that are precarious and poorly remunerated, yet simultaneously accessible and essential to those that toil within them.

Employment and livelihoods: Beef output markets

As already has been suggested, downstream output networks for beef were substantially different to horticultural commodities. Not only did the beef value chain have the bi-directional quality already discussed, it sustained a particularly diverse set of economic actors and enterprises. Apart from the capital cost of animals, the barriers to beef production are low for anybody with access to land (a single informant even listed road verges as a site of grazing). Therefore, even small-scale African farmers located within the focal site's communal areas were sellers and buyers of cattle. Although rangeland beef production is relatively labour un-intensive, cattle ownership has important implications for rural livelihoods more generally. Cattle are often an important store of wealth, and a conduit for the social reciprocity on which impoverished African households frequently rely (e.g. ceremonial gifting, communal

consumption, animal traction for cultivation, etc.). Many of these cattle-owning households would, by conventional income measures and urban standards be regarded as far from affluent (such as Mr LS), making cattle key assets for them, and the rural poor more generally.

Conclusion: Value chains and downstream linkages

This section considers the relationship between Weenen producers and formal markets, standards and prices, along with district-specific patterns of mixed farming and diversification.

Although Weenen farmers were outside of the supermarket-dominated food system, its influence, noticeably in terms of setting standards and prices, is felt throughout fresh produce markets. In relation to standards, Barrientos and Visser (2012) note that the accreditation standards demanded by European deciduous fruit buyers trickled down into buyer requirements for fruit in FPMs. In this way, these standards become the de facto standards for a commodity at the FPMs. While these dynamics are less at play on horticulture staples, such as cabbages and potatoes, they are not altogether absent. In value chain terms, the outputs are judged almost exclusively on product (rather than process-related or social) 'standards'. The latter metrics typically characterise foreign export markets and the premium end of the domestic market. The retail and wholesale horticultural value chains accessed by Weenen producers are neither integrated nor modular, but instead are the 'arms-length' format of market-based commercial relations between actors (Barrientos and Visser 2012). This is a pattern that facilitates local buyers and is, therefore, conducive to local employment.

With regard to horticultural commodity prices, Weenen's commercial farmers readily accessed market information (on their cellular phones), including prevailing daily prices at major FPMs. National market prices frequently serve as a benchmark for local prices, especially commodities sold to markets outside of the local district, such as potatoes. Although Weenen's producers are price-takers, the formal agro-food system (including the FPM) sets the parameters of local prices. In these ways, external markets influence both standards and prices.

The focal commodities discussed (viz. potatoes and cabbages) are part of diversified farming systems. No producer in the Weenen district produced only these two crops; they cultivated them alongside other horticultural commodities and, in many cases, field crops (e.g. lucerne, maize). Even the district's larger-scale commercial farmers diversified their cultivation extensively, only planting proportions of their available land with a crop at a time. For instance, potatoes or cabbages seldom exceeded more than 10–20ha, despite the district's average (large-scale farmer) landholding being in the region of 100–200ha.

The reasons for this high level of diversification are multiple, but include cash flow and risk mitigation. While year-round production served to smooth out seasonal cash flow peaks and troughs, more than one respondent indicated that it reduced the reliance on production finance, as some of the proceeds from a harvest can be directed to inputs for the next crop²⁹. The farmers hence diversified their plantings in order to capture the gains, but limit the potential downsides. Some of the diversification was into relatively niche crops (such as chillies or groundnuts), but different crops were cultivated for a range of reasons. For example, Mr RS

²⁹ Diversification served to reduce the financial risks inherent in using production credit. This risk is high in a region where crop insurance is prohibitively expensive, and crop production (especially potatoes) requires expensive inputs, thereby magnifying the business risk.

planted maize for its stable prices, as a rotation crop and for its ease of cultivation ('a crop for dummies', he dubbed it). He planted chillies for market flexibility (green or high-value powder) and because chillies are less subject to theft. Lucerne was the least remunerative crop but well-hedged against the risk of theft and potential ravages of hail. Each crop was effectively combined in a portfolio of production – balancing risk and return.

Moreover, several farmers, including those in the sample (Messrs MT, SGF and SM) engaged in beef production. There were variations even in beef production, so small-scale farmer Mr SM used his multifunctional herd for dairy and 'customary' uses. But there were significant synergies between crop and livestock production. Cattle were grazed on stover or even, unusually, vegetable discards, such as the outer leaves of cabbages. This articulation between Weenen's mixed farming systems, the imperatives of diversification and risk management are returned to later, in relation to enterprise strategies.

Downstream linkages and small-scale farmers

Small-scale farmers demonstrated many of the same impulses to diversification as larger-scale farmers. They frequently engaged with informal markets and accessed the opportunities provided by the chicory growing co-op. Unlike the larger-scale farmers, a single respondent sold milk under conditions of informality (unpasteurised, non-sterile bottling), at a small scale. It is likely that, if this were done at a larger scale or sold into the formal food system (local shops, etc.), it would encourage the attention of the municipal environmental health officer. The farmer's smaller volumes and social proximity to his impoverished African customers both enabled and compelled him to access this market.

Conventional discussions of SSFs in the informal sector identify a number of constraints in terms of their ability to access formal markets, including factors such as product consistency, production volumes, lack of administrative formality, accreditation and even their inability to work with buyers' long payment terms. These were evident, to some degree, in the research context, where producers were at a disadvantage in terms of their scale and access to formal markets. However, it is noteworthy that even Weenen's larger-scale commercial farmers are subject to similar kinds of constraints. This reflects their marginal position relative to the larger food system. Estcourt's Macksons supermarket chain did not procure from proximal Weenen farmers, but from mass producers Rugani³⁰ carrots, ZZ2 tomatoes and Barrow beetroot (supplied via the Johannesburg FPM). Increasingly, therefore, the distinction is not between Weenen's SSFs and what (parochially) constitute large-scale commercial farmers, but rather between both of these groups and the genuinely large-scale corporate agribusiness.

'Higher order' influences on output markets

In examining the factors that shape downstream linkages and employment, a number of 'higher order' factors are evident and discussed below in terms of four headings: firstly, the characteristics and demands of the buyers; secondly, aspects of the spatial context; thirdly, the nature of the production system; and fourthly, the social dimensions of networks and value chains.

³⁰ Rugani grows a third of South Africa's carrots and supplies approximately 40% of the thrift pack carrot market (*Financial Mail*, 20 January 2012).

Characteristics and demands of horticultural buyers

In conceptualising the factors that shape downstream linkages, key factors are the characteristics and demands of buyers. The range of (particularly) horticultural buyers and the distinctions between them have been discussed: buyers sometimes have different requirements or privilege different qualities in the commodities they source.

While some of the basic metrics of horticultural quality were commonly shared (freshness, lack of blemish, colour, etc.) there were salient differences. For instance, several informants described the African potato buying market as historically having a preference for unwashed potatoes (or at least being unperturbed by unwashed potatoes), whereas supermarkets and middle class customers exacted washed potatoes.

Similarly, the African market reportedly favours large cabbages. These are perceived to be good value, a proclivity accounted for by several informants in narratives of the large African household. The premium attached to large cabbages sees them fetch higher prices than smaller heads of cumulatively equivalent mass (much like attractive, large fruit fetches proportionally higher prices). By contrast, many middle class and white consumers favour small-to-medium sized heads of cabbage, better suited to their ability to consume and refrigerate it. (A routine retailer's 'value add' is to cut heads of cabbage in half, plastic wrap and sell them at a premium). The demands of buyers and markets recursively feed back into and shape production decisions and strategies. More importantly, the continued place of producers and intermediaries within the downstream value chain is often contingent on their ability to understand and service these demands; all the more so in the context of the wider supermarket-dominated agro-food system, where small producers being capable of meeting these demands is a prerequisite for enterprise sustainability.

Horticultural value chains: Space, distance and transport

Downstream links to markets are highly influenced by issues of space, distance and the pragmatic demands of transport. Within the small selection of Weenen case studies, the linkages to buyers straddled spaces that were variously local, regional and transnational (i.e. to adjacent Lesotho). The costs of transport and logistics are important cost components in the value chain, and the prices obtained by producers are influenced by transport costs. For many commodities, such as potatoes, transport costs can be farmers' second or third highest costs (depending on the region) (Braun and Van Zyl [n.d]). Transport is also intertwined with downstream distribution, and employs entire categories of people.

Transport costs are a function of the volumes involved: larger volumes reduce the transport costs per unit. The costs imposed by distance are offset by larger volumes of production, and the ability to agglomerate volumes (a key function of intermediaries). Volumes and aggregation therefore negate some of the friction of distance.

Transport costs are a function of fixed capital, variable vehicle running costs and employee time. A larger truck carries large volumes, but a light truck ('bakkie') offers quicker turn-around times, due to faster travel but, more significantly, its ability to manoeuvre and unload with less delay at busy supermarket loading docks. Mr SGF described the ability to leapfrog larger delivery or access awkward delivery entrances as an advantage in his intermediary's deliveries to Estcourt. Therefore, the costs of negotiating the demands of space involve the triad of distance, volume and time.

Volume creates differentials in the ability to profit over distance. So the smaller volumes produced in Weenen are unable to compete with the largest of the high-volume producers

elsewhere³¹. These large producers enjoy an asymmetry of advantage because their volumes, regularity of supply and optimal economies of scale for transport enable them to out-compete smaller producers, even within the smaller producers' own locales. However the ability of producers and their downstream intermediaries to sustain themselves (and their employees) does not necessarily depend on moving large volumes – which can turn on their being more nimble, responsive and efficient (as in the case of Mr SGF's Estcourt intermediary).

Finally, the triad of distance, volume and time does not correspond with physical distance. The route to Ladysmith (60–64km) is longer than from Weenen to Estcourt (34km), but the flat topography of the former makes for a faster and less costly trip. Similarly, low 'backhaul' costs from the Highveld make horticultural products procured from Johannesburg's City Deep FPM (400km away) very competitive with those sourced from adjacent Weenen (34km). Hence, the low cost of transport negates many of the advantages of proximity that Weenen's producers might otherwise enjoy. Here, favourable transport costs trump geographical distance, putting pressure on Weenen's downstream market outlets, and, ultimately, the livelihood and employment prospects of those within it. The essential point is that producers and those downstream of them are constituted within a larger spatial context. Their ability to radically change their operations and linkages (and therefore employment levels) is highly influenced by this spatial context.

Value chains: Characteristics of supply, volume and the production system

The characteristics of the supply of the commodity in question, volumes involved, and nature of the production system are all configured in response to the market. For example, Mr DF sold his entire cabbage crop (and a small proportion of his potato crop) to the informal bakkie trader market. The bakkie traders, in turn, retailed the produce through various routes to the informal African market. Moreover, Mr DF tailored his output to the market, as he sought to grow large heads of cabbage for African consumers.

Not only was his production system carefully attuned to the market, the very choice of cabbage production allowed for a crop where final harvesting (twice annually) could be carefully synchronised to the daily demands of the bakkie buyers. The temporal 'window' for harvesting cabbages is long, so workers harvest ad hoc and load directly onto the buyer's vehicles. In peak season (possibly resulting in an early morning queue of fifteen vehicles) operations speed up.

This might be contrasted with potato production, where harvesting is a far more demanding operation. It represents the highest labour demand period in the district, requiring a large number of additional labourers to be sourced simultaneously with other producers' labour demands (inducing labour constraints, as in the case of Mr MT).

In the Weenen district, blocks of potato cultivation are generally in the region of ten hectares (far below the scale required to make mechanical harvesting viable). Potatoes are mechanically 'lifted', using a tractor, and manually collected by a large pool of labourers working systematically. Potatoes are loaded in the field, transported to a central point on the farm and (usually) washed, sorted, weighted and bagged. Harvesting, therefore, requires large numbers of field- and shed-based workers.

³¹ Such as Rugani carrots, which produce a third of South Africa's carrots; ZZ2, which grow 40% of South Africa's tomatoes; or Karan Beef, which supplies a quarter of South Africa's feedlot-reared beef (*Financial Mail*, 20 January 2012).

In a small operation, under operator-farmer management, this arrangement imposes the demand of simultaneously supervising two large groups of (mostly casual) workers. Even with an intermediate supervisor, the farmer either alternates between the two teams, or works with the entire workforce sequentially. Hence, Mr DF oscillated between the two teams (with an overseer for the field workers). In contrast, Mr RS's teams harvested in the morning and decamped to his shed in the afternoon to pack, wash, sort and bag under his supervision.

Unlike cabbages that can virtually be harvested on demand, the labour-intensive potato harvest invariably yields large volumes. The routine harvesting of a hectare of potatoes produces approximately 40 tons or 4 000 bags per day. As this is a quantity of potatoes far in excess of the demands of farm-gate bakkie buyers, external buyers and markets are required. Hence, even Mr DF, who has long supplied the informal bakkie buyers, markets potatoes through the local wholesaler (Papadopoulos Trading) and the Pietermaritzburg FPM. In these ways, characteristics of production systems, requirements of managing labour and demands of accessing markets are intertwined.

Production systems, physical infrastructure and labour demand

The production system is patterned by markets, labour and available physical infrastructure. For example, Mr RS possessed a potato-sorting machine able to wash, sort and bag the morning's harvest on the same day, leading to the sequential splitting of these tasks daily. On the other hand, Mr DF's lower-capacity machine required these activities be conducted concurrently.

If Mr DF simply replaced his machine with a high-capacity one, bottlenecks would migrate to elsewhere in the production system. The high-capacity machine would overwhelm the field team's ability to keep up supply; but if Mr DF simply hired more casual workers, this would, in turn, magnify Mr DF's supervisory burden. Therefore his production system, with its alignment of labour, supervisory oversight and physical infrastructure has its constituent parts calibrated to each other. Simply increasing one of these components (e.g. hiring more labour, or increasing physical processing capacity) would demand changes in the others.

Incentivised by the market to maximise the utility of their labour, producers are unlikely to employ larger numbers of employees without commensurate changes in their production systems. In fact, all the trends are in the opposite direction, namely, strong inducements to reduce costs by trimming employees and increasing the labour derived from existing workers.

The relationship between outputs, the production system and employment not only encompasses an economic logic, but is also embedded in antecedents of both the individual farmer and the farm's previous production arrangements. While Mr DF was open to innovation, his actions were also constituted within the parameters of the prevailing production system, existing buyers and histories. Mr RS's production of chilli powder was enabled by the fact that the farm had several coal-fired dryers and a legacy of previous tobacco production. The availability of these repurposed dryers tipped the economics of chilli production further in his favour.

On-farm production systems are invariably complex systems with a range of determinants. Agricultural workers are embedded within these larger systems, but employees are just one part of them. Significant changes in production systems are likely to result in changes to patterns of agricultural employment – either upward or (more typically) downward.

Value chains: Social networks

Social dynamics and the social embeddedness of economic actors frequently have powerful impacts on all market relationships (Granovetter 1973). However, within the focal research context, these were particularly evident in relation to output markets and buyers.

Output networks are often influenced by ethnic and religious affinities. In the area of study, these could be seen in relation to a number of cases, including Halaal meat. The place of reputational capital and even membership of ethnic or religious networks was found in the Weenen's Muslim-run abattoir and butchery, which produces Halaal beef. Although much beef sold in KZN is by default Halaal, the reputational assurance of a small butchery, run by a long-established family of observant Muslims is part of the butchery's competitive advantage. It secures the patronage of the Muslim customers, some of whom travel from far. The assurance of a Muslim butcher is important for many consumers; hence, in Greytown's (Hindu-run) Aheers supermarket, a senior manager observed that, although a whole range of their meat was Halaal, many customers bought their meat from a Muslim-run butchery in the town. In much the same way a key (Muslim) intermediary of Papadopoulos Trading was able to win back the custom of a lost Muslim-owned supermarket chain in Estcourt. In this way, religious identities, social networks and affiliations crucially shape commercial networks.

Yet, within the broad parameters of various group identities (religious, social or ethnic) are a number of social and interpersonal relationship and allegiances, which also shape how actors engage with the value chain. An example of this and the primacy of these social relationships was the three-part typology of potato producers, identified by the Weenen wholesaler, Papadopoulos Trading. These were three varieties: a group that 'always', another that 'sometimes' and yet another that 'never' sold their produce via the wholesaler. The first group exclusively supplied to Papadopoulos Trading, and were contacted first when a potential buyer approached the wholesaler. The second group did not sell through Papadopoulos Trading exclusively. The wholesaler willingly transacted with them, only after soliciting from the first group of suppliers. Exclusive supply, therefore, earned a producer preference. The third and final group of potato grower never dealt with Papadopoulos Trading, due either to indifference or antipathy. These producers disregarded the wholesaler because they had alternate routes to market, or felt its commission to be too high, or had fallen out with the wholesaler.

Commercial relationships, especially those between producers and downstream intermediaries, are, therefore, often shot through with interpersonal histories and dynamics. They range on a continuum between loyalty and often friendship on one end, to antipathy or enmity on the other. Some of the most significant manifestations of social considerations on exchanges within the value chain concern how, where and on what terms value is extracted, typically in the form of commission, rents or other gains. In the focal research context, the social characteristics and demands of reciprocity often meant that upstream actors did not simply seek to maximise profit at all costs. There was often an ethos of allowing margins for key intermediaries; of, in the words of a respondent, leaving 'a cut [of the profit] for the next guy'. Allied to this was the practice of allowing a large or regular buyer some measure of geographical exclusivity, in other words, not supplying their competitors in their own sales area or town. (Mr SGF was, for instance, mindful of this.) Like many practices within social networks, these were frequently tacit and the subject of contestation only if violated. Significantly, even large volumes of trade were conducted verbally between these parties who were well known to each other (essentially through oral contracts), and only later codified in monthly accounts and invoices.

An example of allowing a sustainable margin for a downstream intermediary was of Papadopoulos Trading's key intermediary in Estcourt. He serviced Estcourt's traders and supermarkets daily, with accounts (which all parties had sight of) reconciled monthly between the supermarkets and Papadopoulos Trading. Therefore, the accounts, including the intermediary's commission, were visible to all parties. The logic of Papadopoulos Trading retaining the intermediary was rooted in longstanding interpersonal relationships (lasting several decades), a notion of mutuality ('I don't cut him out and he doesn't cut me out'), and the access into networks of religious and ethnic solidarity (in this case, the Muslim-dominated trade). In addition, as Papadopoulos Trading dealt with up to 300 phone calls a day, the intermediary reduced this burden. In conclusion, commercial interactions are patterned by larger dynamics of religious and ethnic identity, but also by interpersonal allegiances and social reciprocity, and pragmatic commercial and logistical realities.

Summary: Downstream output networks

To recapitulate the main points made in this section: output markets shape, but are also recursively shaped, by the specific nature of the output or product involved. Furthermore, the empirical data shows that even the largest of Weenen producers are by national standards comparatively small. In terms of their output markets and several key arrangements there appears to be much in common between the cohort of SSFs and the large-scale (by local standards) farmers. This is an important point, for they may not be that different. In addition, farmer-producers demonstrate a wide range of strategies, even if they are compelled to act within the parameters often posed by the larger agro-food system. These findings have a number of implications.

The findings, firstly, relate the adeptness and (often) experience necessary to remain a viable producer. Secondly, they suggest some of the complexity and nimbleness required to continue to access markets. However, many of these repertoires of potential activities also reflect a path dependency (e.g. Mr DF's informal cabbage buyers predating his tenure on the farm). In this way their agency, and therefore the ability to change their production system is constrained.

Thirdly, the preceding finding has implications for new entrants and suggests some of the difficulties they may potentially encounter, for many new entrants face a 'low road' of production under conditions of economical informality and low cost, (often) for local or mass markets. Alternatively they face the 'high road' of production under conditions of formality and higher degrees of complexity (variously technical or enterprise complexity, or complexity in output networks). The successes of the small producers (the SSFs) are often highly reliant on developing and exploiting key niches. In the research site, these include unpasteurised milk bottled under non-sterile conditions, in the case of Mr LS; groundnuts, in the case of Mr MN; or even the highly complex institutional players and arrangements and an esoteric chicory crop, in the case of the Umbumbano Co-op.

Fourthly, the findings suggest some of the key requirements of the social relationships and social dimensions; even the degrees of social authority (or 'social capital') frequently required. These range from the respectability and authority of the elderly, *pater familias* SSFs, to the youthful, unmarried, non-farm owner Mr MT's self-described difficulties in commanding the authority over his (particularly male) workforce.

Finally, despite the social and political prominence of (mostly white) commercial farmers, a narrow focus on them might be out of proportion to their relative influence within the larger system. This

has wider potential policy implications, including the fact that the deracialising of agriculture – or replacing of a cohort of white farmers with black farmers – is likely to leave the current system of production and patterns of opportunity, employment and trajectories of agricultural development relatively unchanged. There is, for example, little evidence of decisive breaks with prior employment practices (including numbers of employees) amongst the two African commercial farmers included in the research (viz. Mr MT and the proprietor of Ethu farm).

Social networks and the politics of agriculture

While social networks' influences on market relationships are particularly evident in relation to output markets and marketing arrangements, they remain influential in more general terms. A focus on some of these social dynamics is relevant because they are key determinants of how real markets work and provide the institutional backdrop for local economic activity, including agriculture. Social and informal institutional networks are shaped by key aspects of the social and political context.

A noteworthy feature of some of the SSFs was their social adeptness, and the deftness with which they aligned themselves with patrons and benefactors. For example, Mr LS (and other interviewees) were garnered respect, goodwill, and assistance from better resourced white commercial farmers in the district. Indeed, in some respects it is these very qualities – the social confidence to engage with others, explain their farming operations, respond to queries and cast themselves as hardworking and enterprising – that made them readily 'visible' to the researchers in the first place. Mr LS and other SSFs reportedly received assistance with ploughing, the loan of implements and technical advice in response to queries about crop production. Two of the SSFs had, by their own accounts, benefited from supportive relationships with former white owners, and from the owners' willingness to help facilitate their purchases.

With regards to the white commercial farmers identified with providing assistance to the SSFs, while many white farmers' narratives were tinged with paternalism and socially conservative views, there was often stated respect for the SSFs' hard work and dedication. The two groups also often seemed to share the gendered solidarity of being the patriarchal bosses of their own farms. Several white farmers expressed a desire for their SSF neighbours to succeed, and several had materially contributed to this. White commercial farmers often cast this assistance in altruistic terms; however, it is also enlightened self-interest. Farmers have little desire to abut a failed farm with the prospect of depressing local land values, occupation by squatters, providing a refuge for insect pest populations, or an overgrown fire hazard. Finally, the personal and political are also intertwined in complex ways. The more socially and politically astute white commercial farmers understood how the existence of a cadre of viable black farmers was, at least abstractly, in their interest. It would channel some of the political pressures for demographic transformation within agriculture.

Finance, investment strategies and employment

This section deals with issues of finance and investment. These issues are of significance because the use of production finance has implications for the nature and organisation of agricultural production, the larger trajectories of agricultural development and, ultimately, patterns of employment. Finance is a key cost and production factor in agriculture. Farmers face a number of costs, including for inputs, working capital costs, fixed capital costs (typically debt), and a final

component for their own gain, or remuneration. In the face of the steady cost squeeze that has characterised much agriculture in the last two decades, they potentially respond in a number of ways:

- i. They can reduce one of the factors (e.g. reduce the use of inputs, such as fertilizer, or trim capital and borrowing costs).
- ii. They can change the ratio of production factors (e.g. typically substitution mechanisation for labour).
- iii. They can increase the productivity of their farm unit
- iv. They can exit from the production of a specific commodity, or, alternatively, exit from farming altogether.
- v. Finally, they can engage with multiple permutations of the above responses (BFAP, 2012).

Within the focal research context, there was evidence of producers engaging with many of the above. They sought to increase productivity by altering the ratio of production factors in various ways, including raising their outputs, trimming costs, consolidating farm units through expansion to spread fixed costs wider and obtain better economies of scale, and, finally, they sought to decrease employment intensity (employment per hectare). The fact of consolidation, which has seen the number of Weenen's commercial farmers halved in the last twenty years, suggests how the third and fourth of the above options have been exercised.

Within commercial agriculture the ability to leverage capital, funded either through the enterprise's liquidity, or more commonly through production credit, is a key requirement to the scale or level of production required in order to be optimally profitable. Achieving optimal scale entails obtaining the kinds of volumes required to offset fixed costs and secure adequate entrepreneur remuneration (viz. profit), which is, after all, the rationale of production. Moreover, the ability to leverage capital to attain sufficiently large scale is invariably intertwined with specific kinds of production systems. It is typically an integral part of a high-input, high-yield agriculture, which requires the sourcing of high-cost inputs (sound land preparation, hybrid seed, fertilizer, advanced agrochemicals, etc.) to offer the prospect of the highest outputs and gains. Engaging in these forms of production is unfeasible without the resources to fund it. The availability of finance, therefore, shapes the constitutive 'rules' of production, and, in effect, sets the productivity standards against which producers effectively compete. It contributes to the 'productivity frontier' (Aliber 2013), the minimum level at which other producers must compete in the marketplace; the very threshold of what is considered commercially viable. Production finance is, therefore, part and parcel of prevailing production systems, disciplined by the market into maximal economic efficiency.

Accordingly, within the focal research context, the commercial farmers generally accessed production capital from commercial banks. In contrast, the SSFs as a group were far less likely to access production capital (in fact none did). This is attributable to a number of reasons. It firstly reflects their lower 'bankability', in other words, their ability to make themselves bureaucratically legible to borrow from the formal banking system. (While most had personal bank accounts, they lacked enterprise and VAT registration, commercial credit records, etc.) Secondly, there was a reported general aversion by the SSFs to accessing credit from the formal financial services sector for production purposes, because they feared the consequences of their inability to service this debt. They readily understood that their default would see them lose their land. (Of course their inability to access it may be intertwined with their abhorrence of it.) Thirdly, there was a sense that there was, in some respects, less necessity to access commercial production credit, due to the extent to which inputs were subsidised, either through state

agricultural extension services or the opportunities conferred by the co-op. Alternatively, SSFs were able to access more labour at a lower cost, both their personal labour (on their comparatively smaller land holdings) and low-paid or unpaid kin labour. The concerns that SSFs had regarding the risks of accessing credit and debt has policy implications, particularly in light of the fact that many state developmental interventions targeting smallholders offer this credit. They are often concerned with extending credit, and forms of production that require higher-value inputs and higher risk. However, as Tapela (2008) points out in her examination of the recapitalisation of ex-homeland irrigation, it is a strategy that can be at odds with smaller farmers' objectives and one that exposes them to considerable enterprise and livelihood risk.

The primacy of production capital in contemporary cost-intensive commercial agriculture is particularly evident in cases of its shortage. Marginal or cash-strapped farmers face cash flow pressures. The manager of the agricultural supply store, Weenen Agri, described how a handful of the more marginal or cash-flow constrained farmers in the district would choose to buy bulk agricultural requisite through the store. They would pay the store's price premium (relative to sourcing the input directly), primarily in order to access 30-day (effectively as long as 60-day) payment terms. For a cash-flow constrained producer, this would help to flatten out the peaks and troughs in their income. In much the same way, for cattle sellers a major attraction of using the large auction houses (Vleissentraal and its competitor BKB) was that sellers received prompt payment. Conversely, buyers whose creditworthiness was formally vetted by the auction house prior to sale received up to 14-day payment terms. Quite apart from the conventionally understood benefits of auctions (such as market-related prices and quick sales), to many cattle sellers the prompt and assured settlement these firms offered was attractive and worth the commission costs incurred. With physical money actively discouraged through punitive fees (due to security concerns), auctions were spaces of virtual money, of electronic fund transfers (EFTs) into bank accounts and transactions with known, creditworthy buyers. The ability to extend credit was, therefore, a key part of several of the key enterprises within the RNFE, within both upstream and downstream production networks.

The role of finance as a factor of production is not limited to production capital; it also relates to the funding of fixed assets, typically the land itself. Although much of the capital for fixed assets is accessed by commercial farmers through one of South Africa's big four commercial banks, this research found exceptions. These included Mr RS who rented his land, Mr SM (MT's father) who accessed finance through the state-backed Land Bank, and, finally, Mr DF, who was privately financing the purchase of the bulk of his land through his mother-in-law (the nominal owner), but at commercial interest rates. Similarly, at least two of the SSFs had secured mortgage finance – one through the Ithala Bank, a KZN (provincial) development finance agency.

Already suggested is the proposition that access to finance is intertwined with particular kinds of commercial production systems: thereby enabling but also exacting forms of high-input, high-yield production. Hence this high-risk, high-reward commercial agriculture is enabled by the very availability of production capital; its very existence is dependent on the ability to finance it. Current networks of inputs and repertoires of farm-based production systems would potentially look very different in the absence of finance, as would their patterns of employment. To eschew production finance would entail a step back from existing forms of production and, in many cases, require the substitution of labour to compensate for the absence of fewer inputs (such as fewer agrochemicals and the use of less fuel and mechanisation). Hence, if a larger-scale commercial producer had to abjure the conventional panoply of inputs, they would require labour-intensive hand-hoeing, or be compelled to harvest with less mechanisation. Farmers' reliance on current methods (and finance) suggests the current cost equation is in favour of

inputs and finance rather than labour intensiveness. Indeed, this is what the larger trajectory of declining agricultural employment and rising agricultural 'productivity' unequivocally points to. The converse consequently applies: all things being equal, high degrees of labour intensiveness are likely to co-exist and be stimulated by lower-input agriculture. Therefore, in South Africa the very existence of finance is an important parameter of prevailing production systems, patterns of consolidation, and ultimately employment. This is likely to be different in other contexts. For example the dearth of rural finance – such as is experienced in Zimbabwe – is likely to inhibit consolidation amongst producers, thereby shaping the nature of the production system and, ultimately, the employment opportunities it creates.

While production finance provides an important influence on commercial agriculture and ultimately its levels of employment, it is useful to bear in mind that there are variations contingent on specific enterprise strategies. So, within the focal research context, finance is an important factor of production, but precisely how it is used depends on individual investment strategies and enterprise objectives. Even among the small selection of case studies, there was evidence of different strategies. Three examples are briefly foregrounded in what follows.

In the case of SSFs in the focal research context, both ran operations where they sought to minimise input costs, and thereby minimise their downside risk. Their inability or unwillingness to access capital saw them inclined to substitute labour for capital. Although precise computations are difficult they used more labour per hectare (and more kin labour) than their commercial farmer counterparts. These practices, including employment intensity, have implications for agricultural development and employment, considered later.

Mr DF ran a lean and frugal production system (keeping old machinery running to rebuild his own shed, etc.). This related to broader concerns about tenure security and being averse to making capital investments in the farm.

Mr SGF and his siblings ran an operation where their production was synergistically linked to their wholesaler business. Key to this was the labour of five co-owners (the enterprises intentionally expanded around to include all five). Their involvement solved several traditional problems of managerial oversight and enabled a closely supervised workforce. They also 'insourced' many tasks, such as construction, mechanical repairs and maintenance, marketing, retail and bookkeeping, and even tasks conventionally undertaken by low-paid employees (tractor driving and cattle herding). Congruent with this was their adoption of low-input production methods, such as low-fertilizer, tilling-free 'natuurboerdery', and feeding of vegetable discards to cattle. They reportedly had few of the accoutrements of many successful white commercial farmers (new bakkies, holiday homes or urban properties, international travel³²). Finally they were re-investing in the farming operations by purchasing adjacent land. Unlike many white farmers, they did not perceive their land to be threatened by land claims. (They indicated no claims had been lodged against the lands).

To sum up, the above three descriptions are not representative of the range of possible production and investment strategies, even within the research context. Instead, they are a small selection of cases that point to some of larger poles within which decision-making takes place. These include decisions about investment, the use of capital, the structure of the production

³² Uncharacteristic of first-generation immigrants, neither the siblings' parents, nor the siblings themselves, undertook return visits to their homeland.

system, management practices and involvement of kin (spouses, siblings and children). Furthermore these strategies are not self-evident, singular or socially 'neutral'. Instead, they reflect determinants that are varied, contextually and historically located, and socially embedded. (A litmus test for investment strategies was frequently the extent of fixed capital investments in immovable assets, either in agricultural land or, alternatively, assets such as urban property.) Cumulatively, these decisions reflect choices to invest, reinvest and disinvest from agriculture, and to diversify between various activities, occupations, investments and geographies. These strategies were diverse even for the small selection of commercial farmers, and equally distinctive for African SSFs (with their avoidance of debt and responding to opportunities provided by the state). Combined, these are all key manifestations of what Hart calls the 'social logic of investment' (1998b).

The economic and political logic of chicory production

The Umbumbano Co-operative represents an interesting manifestation of the 'social logic of investment'. Despite chicory being a niche (and unfamiliar) crop, and the economics of its local production being unfavourable – relative to that produced in the Eastern Cape or India – the crop was pioneered locally. Chicory ostensibly offers an attractive crop for its prospects of a guaranteed market, stable prices, the relative proximity of an industrial processing factory and even limited (domestic) competition in its production. Yet understanding the rationale for engaging in chicory production is impossible without reference to the imperatives of AgriBEE and the availability of high levels of state support.

In examining the establishment of the co-op and history of chicory production, many of the technical challenges inherent in growing the unfamiliar crop were evident. These included a lack of knowledge of the crop, the need to import (and adapt) machinery, the absence of registered agrochemicals (specifically post-emergence herbicides) and the need to carefully train workers to accurately identify the tiny plants during laborious hand weeding. A similarly large array of challenges related to the highly complex institutional arrangements and 'coalition' of funders needed to get the co-op to its current form, along with negotiating the complex (and even contradictory) legislative and administrative requirements (such as a purported mismatch between the Public Finance and Management Act and the Co-operatives Act). Accordingly, establishing the co-op has been a formidable technical and institutional undertaking. Understanding its existence is impossible without reference to the social and political logic underpinning it.

8 The rural non-farm economy: Employment and livelihoods

The section that follows examines employment within Weenen's RNFE by expanding on the contextual overview presented much earlier. The RNFE and patterns of employment and livelihood-making within it are discussed here in terms of the services, retail/trade and public sectors. This present section then proceeds to explicitly consider the impact of on-farm (viz. primary production) agriculture on Weenen's RNFE.

Livelihoods and employment in the retail sector

Retail activities within Weenen consisted of formal and informal sector enterprises, both of which are examined in what follows.

Within Weenen regular (i.e. recurrently throughout the month) informal traders accounted for 10–20 street-side enterprises, predominantly run by African women and frequently active in the food trade (fresh produce, snacks and prepared foods). However, Weenen's informal sector increased by at least tenfold with the arrival of itinerant traders during the monthly three-day 'pension day' or social grant market.

On an average social grant pay-out day, crowds throng the town and the research team tallied 515 individual traders (both roving vendors and those with stalls). Although some Weenen residents sold items (such as craft, beadwork, prepared foods, fresh produce, goats, etc.) at the market, the vast majority of traders and their wares (more than 75%) were from outside of the Weenen area. Many vendors were from relatively distant centres (Durban and Pietermaritzburg) and followed successive social grant day markets on a circuit throughout the province. While much of the stock sold by traders was sourced from South Africa's well developed formal sector, a small number of vendors were the direct employees of formal sector enterprises (e.g. vending from liveried bakery or butchery trucks). The periphery of the market also had a small number (in this case, five) of formal sector, registered micro-lenders.

With regards to employment, the retail sector typically drew on a combination of family and hired labour. The petty vendors of the informal sector typically relied solely on their own labour, but supplemented occasionally by kin.

The formal retail sector within Weenen comprised a comparatively small (in the region of 35) enterprises or individuals that traded throughout the course of the month, vending basic consumer items, such as groceries and prepared foods, along with a few outlets offering alcohol, hardware requisites and clothes). This cohort of retailers consisted of three main groups, briefly identified in the contextual discussion of Weenen (viz. section 2).

The first category of retailers were South African citizens, who consisted mainly of the long-established, often third generation, Muslim (i.e. 'Indian' in South African racial parlance) traders. Clustered along the southern of the two parallel main streets, their fourteen shops employed approximately 55 people. They were active in the 'general dealer' category, but sold varying

proportions of groceries, basic consumer durables and hardware items. Some of these retailers had links to the agricultural sector (such as the local butcher shop, supplied by its own abattoir). A subset of this group of 'local' South African entrepreneurs was three or four black (South) African family businesses active in the fruit and vegetable and liquor stores. (Muslim business people naturally shun the liquor trade.)

The second superordinate group of retailers were foreign nationals; in Weenen these were West Africans, Bangladeshi and Chinese nationals. They were much newer entrants to the local retail market, typically having migrated to South Africa and established themselves within the last decade. They had gained a solid foothold in the local economy, with the Chinese running the largest store – a low-cost 'supermarket' in town. Cumulatively, foreigners ran approximately fifteen stores, often employing one or two local residents each (an estimated 30 in total). None appeared to engage directly with agricultural production, and, without discernible exception, all rented their premises (often from local Muslim families). Much of the relative success of these new entrants in the local market turned on their adeptness at exploiting key niches, at co-ordinating collective buying within their spatially dispersed ethnic networks and assiduously containing their costs (living in their stores, etc.). The newer entrants had decisively reshaped the local retail sector and many of the established (South African) retailers lamented declining trading conditions in the face of this competition.

The local, often somewhat beleaguered, South African retailers perceived themselves to be competing with both the newly arrived foreign nationals and the large multi-store supermarkets in adjacent towns. Weenen's low-income consumers have since at least the 1990s accessed the large independent and corporate supermarkets in adjacent towns (notably Estcourt and Ladysmith). In addition, the 2012–13 opening of a branded, franchise supermarket in Weenen (albeit a small store), appeared to herald the coming of corporate retail – a third and potentially formidable category of market player.

The RNFE and the services sector

The earlier contextual discussion of the Weenen district (section 2) briefly listed a range of services evident in the local RNFE. Many are small-scale personal services (hair salons, childcare, etc.) along with informal builders, etc. Much of the personal services sector is dominated by women and marked by high degrees of economical informality. As services are not always undertaken from dedicated premises, they were not consistently visible to researchers. A single conspicuous exception to this general pattern was the consulting room that a private medical doctor (based in an adjacent town), maintained within Weenen. Already alluded to in section 2 is the relative dearth of professional services (dentists, lawyers, etc.) within Weenen.

The services sector also encompassed the local tourism industry. The local nature or game reserve industry saw approximately half-a-dozen operational private reserves employ an average of 12–25 staff each, typically in various activities related to conservation and hospitality. In addition, 22 staff members were employed within the larger provincial nature reserve. Cumulatively, the game reserve economy in the Weenen district therefore accounted for approximately 150 direct jobs. This number was equivalent to approximately half the number of core 'permanent' employees within commercial agriculture. With 2 323 of the residents of Weenen and environs listed as 'employed' in the 2011 StatsSA census, approximately 15% of the 'employed' work in the game reserve economy. With the likely exception of provincial nature

reserve employees, many of these individuals are employed under relatively poor conditions (remuneration and terms of employment), largely comparable to those within agriculture.

Across the world the RNFE increasingly encompasses activities that extend beyond agriculture or any sort of primary production. Rural economies are increasingly characterised by 'post-productivism', as they become zones of leisure, tourism, retirement, craft and creative industries and even property development and speculation. Within the Weenen district its game reserve leisure and tourism activities fall into this category. However, second (holiday) homes, retirement facilities and the like are altogether absent, unlike in other locales with better place-based qualities and more favourable locations relative to metropolitan centres, where they can become major drivers of the local economy and employment.

The RNFE and the state

Within Weenen unemployment is high, much of economic activity is at a comparatively small scale, and enterprises are of modest size (only a handful had employee numbers in the double digits). In this context, some of the most remunerative and secure employment was associated with those in the employ of the state.

Within Weenen state employees ranged from a comparatively small number in elementary occupations (cleaners, orderlies, porters, labourers, etc.) in facilities such as the police station, clinic, schools and provincial game reserve. More significant were a larger cohort of semi-skilled and skilled staff (municipal clerks, police officers). Above them – in occupational and earnings terms – were the even better remunerated skilled 'semi-professionals' (nurses, teachers, etc.) numbering an estimated 85–100 individuals. In occupational terms, the latter group is conventionally thought of as middle class, but by the income distribution standards of a small, impoverished town, such as Weenen, they are nothing less than a local elite. In addition to their incomes they enjoy comparatively generous employment benefits (private medical aid, pensions, etc.) and high levels of job security, and are frequently unionised.

In terms of aggregate numbers, a tally of public institutions suggests that in the region of 200 public employees are based in Weenen. While there are no dedicated statistical enumerations of state employees publically available, census data reveals that within the three wards that make up Weenen and its immediate surrounds, those employed in the 'formal sector' (a category which includes civil servants) amount to 4.5% of black Africans. The overwhelming majority of state employees are Africans; hence the respective 'formal sector' totals for employed Indians and whites of 18.97% and 27.20% respectively are doubtlessly comprised of large numbers of individuals employed in the private sector.

While public sector employees contribute to the largest single and most visible group of the formally employed in Weenen, state-funded income sustains local livelihoods in other ways. Fiscal transfers in the form of cash transfers to the poor are a significant source of income. Within Weenen, as in many impoverished areas within South Africa, the state is a significant nexus of resources in the form of welfare payments. The Weenen social grant pay point disbursed a monthly sum of R9 848 087 in state cash transfers (late 2013), to 11 888 recipients. Moreover, this sum excludes the sums paid to substantial numbers of grant recipients who opt to have their grants paid into bank or post office bank accounts. As there has been a firm move to these electronic channels, at provincial level they amount to the approximate equivalent of

60%³³ of the cash payments (it varies by district and over time). Hence, payments to the aggregate welfare receipts in Weenen plausibly amount to about R16 million. The R10 million (the arithmetical minimum) monthly value of state cash transfers paid in Weenen exceeds by a factor of ten the imputed value of agricultural wages of roughly R1 million per month paid in the district³⁴.

Although South Africa's comparatively generous system of unconditional and redistributive social grants is exceptional for a developing country context, there are broader parallels in other country contexts with the effects of 'social protection' on the RNFE. For instance, Devereux et al. (2006), describe the contribution of Malawi's fertilizer subsidy programme as a major vector of resources into the RNFE. Social protection, therefore, increasingly serves to sustain contemporary rural livelihoods. Across the global north fiscal transfers from generous agricultural or rural subsidies, via programmes and infrastructure to rural residents is hardly uncommon. Similarly, livelihoods amongst many rural dwellers in South Africa's largely de-agrarianised, impoverished countryside are underpinned by the state-dispensed resources and transfers.

A number of points ought to be emphasised about the structure of RNFE within the focal research context. The first is that, in functional terms, Weenen is effectively a satellite town of adjacent Estcourt (34km away). This quality is especially evident in relation to economic and administrative linkages. It is underscored by patterns of mobility and the prevalence of vehicle-owning daily commuters revealed by traffic flows (discussed earlier). All of this suggests that, for many of its comparatively affluent middle class residents, Weenen functions as a dormitory town relative to larger centres.

The second point follows from the first, and concerns the consequences of Weenen's relationship to the larger adjacent town. Its proximity to Estcourt means that economic resources and expenditure frequently haemorrhage out of Weenen's local economy. Adjacent Estcourt, or more distant Ladysmith (64 km) are economic centres of gravity for many of Weenen's more affluent residents. However, even Weenen's impoverished residents (e.g. social grant recipients and farm workers) reportedly do monthly bulk shopping at Estcourt supermarkets, and their incomes enter its RNFE. In this way, it is impossible to understand the RNFE in Weenen, and ultimately patterns of employment, without reference to connections to adjacent urban centres. The size and prominence of retail (groceries and basic consumer goods) in adjacent Estcourt, arguably serve to 'crowd out' similar trade within Weenen.

The third point is that, while Weenen is shaped by being 'near' and crowded out by a much larger local economy, these dynamics are not static. Rather they are in flux and changing. Weenen's RNFE and local retail sector have not only seen the entry of foreign national traders in the last decade; the recently opened branded corporate supermarket is of significance. This development clearly indicates that, not only do the stores operators (who are externally resident), regard Weenen as a viable market for expansion, so too does the franchisor – in this case, the listed retail behemoth Shoprite Holdings. The arrival of this store may well be a precursor to forms of 'external connectedness' (viz. links to external markets, capital, investments and forms of surplus extraction) previously unprecedented within the town.

³³ Provincial figure revealed by an official; this changing (increasing) proportion is not publicly disseminated.

³⁴ Outside of the seasonal spikes in labour demand (harvesting), the cumulative wages paid by large-scale farmers are estimated at under a million rand per month.

The fourth point concerning the structure of Weenen's RNFE relates to the manner in which these dynamics interface with inequality, race and class dynamics. Many of the middle class (the black civil servant bourgeoisie, Indian shopkeepers and white farmers) are – in terms of their economic activity – orientated outwardly, well beyond the confines of Weenen. They (or members of their households) routinely commute out of the town to jobs or schools or for their shopping, leisure needs and medical and other professional services. They typically consume and invest outside of the local RNFE (and, in a few cases, their primary households are even located outside of Weenen). In this way, an entire strata of services and consumption associated with the middle class and the resourced are either absent (examples include banking and various professional services) or they have significantly waned, such as in the case of Weenen's radically downsized post office). Moreover, these dynamics are self-reinforcing: reducing demand for goods and services by the local elite leads to a reduction in their supply. These dynamics make for a local RNFE that is largely orientated to servicing the undifferentiated and basic consumption needs of large numbers of low-income consumers. All the while, the significantly greater per capita spending power of the more affluent recedes and is redirected elsewhere. Atkinson (Personal communication, 19 August 2015) discerns similar dynamics when she describes small South African towns of mostly poor residents, with a class of black civil servants and those connected to them bringing important revenue into town with their salaries, alongside more vulnerable small businesses (often family run). (In much of the South African countryside the small business owners are white, but in KZN Indian business owners predominate.) Significantly, Atkinson (2015) suggests that in small towns without significant numbers of the black 'bureaucratic bourgeoisie' and white (or Indian) entrepreneurs, settlements are inclined to decline and become akin to 'rural slums'.

Agriculture and the RNFE

To this point Weenen's RNFE has been characterised and livelihood and employment-related dynamics described, all without specific reference to the impact or contribution of the agricultural sector. The section that follows considers the contribution of the on-farm primary production agriculture to local RNFE.

At the outset, it is helpful to reiterate that agriculture in the district takes on the characteristics previously discussed, namely intensive horticultural production in mixed farming systems, predominantly undertaken by a shrinking cohort of larger-scale commercial farmers. In addition, farmers are linked to geographically dispersed input networks and a variegated range of downstream output markets.

In the section that follows the relationships and linkages between on-farm agriculture and the local RNFE are examined in order to consider the employment-related impacts of agriculture on the RNFE. These relationships between the RNFE and agricultural activities are conceptualised in terms of the typology of linkages introduced earlier: firstly, consumption linkages; secondly, production (or 'intermediate consumption') linkages; and, thirdly, agricultural output or market linkages.

Agriculture-derived consumption expenditure and the RNFE

It has been argued in detail that Weenen has a small and even somewhat beleaguered RNFE. The question of how agriculture within the district contributes to consumption expenditure is empirically difficult to answer, but two points bear stressing. The first is that there is a sharp

difference between the small cohort of (<25) white large-scale commercial farmers and those whom they employ. Successful commercial farmers have middle class incomes and consumption patterns. Their incomes are expended in the kinds of ways suggested above viz. outwardly focused, with high levels of 'external connectedness' and schooling, shopping and investing frequently conducted in external locales. These patterns are in turn located within a national picture of deep, radicalised inequalities and income disparities, including and especially in relation to agriculture.

In contrast, those who are employed within agriculture (i.e. waged agricultural workers), along with SSFs, are frequently in a similar position to the larger strata of the African poor. Certainly they displayed patterns of household consumption similar to those of Weenen's impoverished African inhabitants. They are inclined to shop locally (the low-cost Chinese supermarket was unfailingly cited as a source of food), even if with monthly grocery shopping trips to Estcourt supermarkets. The expenditure of the proceeds of agriculture, whether these are owner-operator profits or labourers' more modest wages, therefore follows the bifurcation that marks local consumption more generally. On one hand, it consists of the mass of impoverished Africans buying basic consumer goods, often locally, and on the other hand, a smaller, affluent and externally orientated cohort of middle class consumers (white, but also Indian and some Africans) focused further afield.

It is extremely difficult to compute the extent to which employment in Weenen's RNFE benefits from local consumption expenditure, including of wages earned in agriculture. While aggregate agricultural wages can be imputed (under R1 million per month, outside of peak labour demand period), precise patterns of expenditure are far more difficult to capture. However, what is abundantly clear is that agricultural wages cumulatively amount to a fraction (a least a tenth) of state welfare payments, and roughly half of civil servant salaries (estimated in the region of R2.6 million monthly³⁵). Aggregate agricultural wages, therefore, make up a fraction of these welfare and fiscal transfers. This is quite apart from Weenen's other sources of even less readily quantifiable, non-farm income, such as the proceeds of trade and remittance, which the current inquiry does not even attempt to impute. The salaries paid to workers in agriculture can, therefore, mathematically represent only a small proportion of the local source of income, and, consequently, can make only a similarly diminutive contribution to the RNFE in terms of consumption expenditure³⁶.

Agriculture production expenditure (intermediate consumption) and the RNFE

The paucity of agricultural production expenditure, or 'upstream' linkages within Weenen and the larger RNFE has been described in detail earlier (section 1). In conceptualising the linkages and multipliers between the local agrarian economy and RNFE, it is helpful to think in terms of three scales. These are, firstly, local linkages effectively within the focal town of Weenen and its adjacent farms; secondly, an intermediate or 'meso' scale comprising the district and/or region beyond the town of Weenen; and thirdly, the macro scale of linkages and input supply networks that encompass the expansive national context. These three scales are discussed in what follows.

³⁵ Estimate of earnings received (rather than cost of employment) are derived by multiplying the May 2013 average income of R17 513 in Community, Social and Personal Services industry (Statistics South Africa, 2014), by an estimated 100 public employees, and a sum of half the amount (viz. R8 756) multiplied by 100 low-waged public sector employees, giving an indicative total of R2 626 900 for 200 employees.

³⁶ This naturally assumes the unlikely scenario of all income being spent locally. However the computation gives a useful sense of the *order of magnitude* with which to compare agricultural wages.

With regards to the first, the micro realm of the local (within the town of Weenen and its immediate environs), there is a dearth of agricultural input supply, with two very specific exceptions. The first exception is the Weenen Agri supply store; the second are four or five individual, independent self-employed mechanics. The specific nature of these exclusions makes employment numbers effortless to calculate. The agricultural supply store has six employees, and the self-employed mechanics (with a single exception) have none. Cumulatively, agricultural input supply within Weenen, therefore, sustains the direct employment of 10–12 people. This is the direct, demonstrable and narrowly defined contribution of agriculture on the RNFE within Weenen. Even if this figure were generously doubled (to perhaps reflect some fuel sales and other miscellaneous local procurement of hardware or building inputs), it would still represent a miniscule number of individuals.

In terms of their input supply networks Weenen farmer-producers have quantitatively more robust (greater number and higher value) linkages to enterprises and suppliers outside of town. This is essentially the meso or intermediate scale, and at its outer limit encompassed an area within an approximate 100km radius of Weenen. Several of the dominant suppliers at this scale provided inputs to multiple or even all of the farmers. Examples of these include the ubiquitous agrochemical supplier or fuel distributor, each of whom dominated the local market and has an annual turnover at several multiples beyond the statutory definition of a small business (i.e. >R5 million). These enterprises and others, such as businesses involved in equipment supply were comparatively efficient, 'lean' and employment un-intensive (frequently employing in the region of 10–25 people). Seedlings or seed potatoes were an exception to the general pattern, and, as with enterprises, typically employed around 100 workers.

The 'meso' scale of intermediate enterprises within a 100km radius were prominent suppliers to Weenen farmers, but were also noteworthy for the extent to which they supplied a geographical area well beyond Weenen. Gleaning the specific impact of the contribution of demand from Weenen's producers on these enterprises and their employment levels was impossible. However, considering the spatially extensive nature of even these intermediate distribution networks, and the comparatively diminutive aggregate size of Weenen's agricultural output, more than one respondent plausibly suggested the proportion attributable to Weenen was modest.

The third and final 'scale' of input supply involves linkages that radiate well outside of the Weenen district and encompass the large national firms that dominate the concentrated circuits of agricultural input supply in South Africa. Typically with headquarters and facilities in distant urban centres (Greytown's Pannar Seed was a notable exception), these enterprises were either global, or had close links to multinational capital. Enterprises such as these invariably had employees numbering in the hundreds or thousands. For a few specific categories of inputs, national suppliers were accessed directly by farmers (fertilizer, seed), but, more typically, farmers procured from the second or third tier of regional intermediaries, agents or branches (agrochemicals, fuel, equipment, etc.). Discerning the impact of Weenen's diminutive agricultural production on these national and multinational agri supply conglomerates is even more empirically unfeasible and analytically spurious than determining it for the preceding tier of intermediate agri supply enterprises. It is unlikely to be anything other than miniscule.

Several points need be made about the nature of input supply networks.

Firstly, the empirical material chronicles the relative paucity of inputs sourced by farmers from the local Weenen economy. Weenen's modest RNFE is, therefore, in many respects, disconnected

and decoupled from agriculture. It is, for example, difficult to imagine that the local RNFE would change very substantially if Weenen's farmers ceased sourcing any inputs locally – apart from imperilling the agri supply store and livelihoods of several mechanics.

Secondly, the manner in which Weenen's RNFE is disconnected from primary agriculture is, to a substantial extent, attributable to the very shape and nature of agriculture. The larger-scale commercial farmers who predominate within Weenen (and nationally) have comparatively few linkages into the local RNFE; whereas SSFs have more numerous linkages. There is some evidence that inputs supply networks are different for SSFs, as they have a tendency to source more of their inputs locally, with correspondingly greater impacts on the RNFE. Moreover, small-scale African farmers engage with locally based input suppliers (such as the Weenen Agri store), small suppliers (Imbewu Agricultural Supply Store) and suppliers that marketed to SSFs.

However, two caveats need to be sounded concerning the notion of greater connectedness, or a degree of integration, of small-scale African farmers to the local economy. The first is that the full extent of their propensity to local economic linkages (*vis-à-vis* larger farmers) was partially obscured, and even blunted, by the inputs they received via the state (via agricultural extension and the local chicory co-operative). State procurement for these inputs (tractor ploughing services, seed, fertilizer, etc.) invariably leapfrogged smaller-scale and Weenen-based suppliers in favour of larger, formal, often geographically distant enterprises able to tender for state procurement. In this way, the state support for small producers paradoxically served to reduced demand for inputs locally, and aggregated it outside of the Weenen RNFE. It also obscured the alternative scenario of what a more locally embedded SSF input supply network may prospectively look like.

A second caveat is that the seemingly greater contribution of SSFs to the RNFE comes with an important qualifier. Beyond the first linkage to industrially produced inputs, namely the first or direct intermediaries servicing small-scale African farmers, in the focal research area subsequent input supply networks converged with those supplying large-scale commercial farmers. They essentially tapped into the same supply networks. A potential retort to this notion of convergence between small and big farmer input supply networks may be that the small-scale African farmers studied were perhaps exceptional and 'not small enough' (i.e. they were the larger of the 'small farmers'). This proposition demands carefully consideration. The evidence suggests that even 'smaller' scale farmers (such as ex-homeland irrigation scheme Tugela Ferry farmers) sourced inputs from the same and similar enterprises. Certainly the evidence was that enterprises, such as the Imbewu Agricultural Supply Store and Premium Crop seedlings were significant suppliers to these smallholder farmers. It is, therefore, difficult to suggest a fundamentally different or distinctive set of input supply networks exist for small-scale farmers, particularly when it comes to inputs requiring large-scale industrial production, such as fuel, fertilizer and equipment. However, the evidence of some Weenen-based retail (*viz.* Weenen Agri), seedling growers, independent mechanics and (anecdotally) small-scale African ploughing contractors, suggest that specialised local components of the RNFE (e.g. tillage, transport, mechanical repairs, etc.) may well benefit from local, smaller-scale, agriculture. What is (or can be) locally embedded is likely to vary significantly by sector and activity.

Agricultural output markets and the RNFE

The preceding discussion of input supply networks suggest their relative disconnection from, and therefore muted impact on, the local RNFE. This characteristic has significant implications because it undercuts the potential for local linkages, economic multipliers and, ultimately,

employment within the local RNFE. The present section examines a third variety of linkages and connectedness, namely output market linkages, downstream of farm production.

Although there are considerable constraints at play within Weenen, downstream output markets generally display higher levels of economic dynamism than input networks. Against the general backdrop of the distance, and even estrangement, of Weenen's farmer-producers from South Africa's supermarket-dominated agro-food system, their output markets are diverse and variegated. Furthermore, Weenen's agro-food output markets are noteworthy for the extent to which they are supplied by both larger-scale farmers and SSFs. Although not every farmer chooses to distribute or sell into local output markets, there is evidence that both small- and large-scale farmers do.

The evidence for this is noteworthy, because it exists against a national context that is generally inhospitable to small producers. For instance, the National Development Plan identifies that

The traditional approach to rural development and improving agricultural income in poor countries is to help farmers move up the value chain by supporting agro-processing. In South Africa, however, a highly centralised, vertically integrated agro-processing sector already exists for staple foods such as maize, wheat, sugar, sunflower oil, tea, flour, peanut butter, cigarettes, beer, fruit juices and canned goods. These value chains tend to exclude small, new or black farmers ... The scope for small-scale manufacturing and agro-processing targeting local consumers in poor communities is limited. (National Planning Commission 2013: 228.)

Evidence of linkages and a degree of dynamism within local output networks are, therefore, significant for the extent to which they exist within a larger economic context that is generally thought to be characterised by a paucity of them.

While the full contribution of local produce to Weenen's vegetable and beef consumption is a difficult question to discern, it can be significant, especially within vegetable harvesting season. Furthermore, the case of one of Weenen's most prominent wholesalers and traders (Papadopoulos Trading) is noteworthy. Although not the sole conduit into local fresh produce supply, the enterprise is a significant contributor to these. While the co-owners and directly employed staff consist of half a dozen people, Papadopoulos Trading is a significant supplier to local hawkers, vendors and small shop-based retailers within Weenen. It thereby indirectly contribute to local linkages, multipliers and, ultimately, employment. The operation of this enterprise is revealing because it is sustained by significant procurement of produce from outside Weenen, and the distribution of commodities well beyond Weenen. It thereby reveals the expansive scale of operations and degree of external linkages necessary to viably sustain even a quintessentially 'local' supplier. External connectedness is required to remain locally viable, with 'external connectedness' referring to the extent, proportion and relative importance of a local entity's linkages to enterprises or inputs outside of the immediate district or proximate local economy.

In addition, Weenen's informal horticultural trade also includes vendors who procure directly from farmers (bakkie traders). These vendors and small shopkeepers account for the employment (and self-employment) of approximately two dozen individuals, and their activity serves to recirculate local incomes.

With regards to food processing, rather than wholesale or retail markets, and despite several large national industries, including meat processor (Eskort) and beverages and confectionary maker (Nestlé) in the adjacent town of Estcourt, no processor sources noteworthy levels of outputs from the Weenen area, with the exception of a little chicory as part of a larger developmental project. In other words, there are no discernible links between the agro-processing component of the region's larger RNFE, and agricultural producers in Weenen³⁷.

A number of general points need to be made about the impact of downstream agricultural output markets on the local RNFE.

Firstly, output markets are diverse and supported by both large- and small-scale farmers. Certainly, compared to agricultural input markets, output markets are considerably more diverse and vibrant (albeit within the broad constraints of a small, ailing town with a large number of impoverished residents). In general terms, output markets offer far more interstices and economic opportunities, because of a relatively constant and inelastic local demand for food. This is an insight that has policy implications.

Secondly, intermediation and aggregation are key functions within output markets. In downstream output markets economic actors that are able to provide intermediation and aggregation of produce therefore provide an important service³⁸. They broker the transactions, but significantly also contribute to providing requisite volumes – and critical mass – able to sustain local supply or effectively market it, in the first place.

Thirdly, local output markets are, therefore, an important domain for the creation and sustaining of local employment. They potentially offer important points of policy leverage, and searching questions can, hence, be asked concerning support for them. Conversely, critical consideration ought also to be given to mitigating the adverse consequence of contemporaneous developments in retail, such as the coming of big chain supermarkets.

Employment, poverty and inequality in the RNFE

At the conclusion of the previous discussion of on-farm agriculture, issues related to agricultural employment and dynamics surrounding poverty and inequality were described. The section that follows returns to a comparable set of concerns (viz. employment, poverty and inequality) but examines these in relation to the RNFE. It hence seeks to understand the extent, dynamics and determinants of local employment on the local RNFE.

Data constraints make precise employment in Weenen RNFE difficult to quantify. The table below, discussed in what follows, examines the issue by triangulating two distinct data sources (enterprise surveys, interviews) and analysis of 2011 StatsSA census data. The discussion that follows quantifies not only the scope of employment, but also shows key distinctions and differences in the distribution of employment and economic opportunities. The latter have important implications for livelihoods and inequality.

³⁷ A little maize was sold by an informant to an Estcourt miller, but this was the exception rather than the rule.

³⁸ They can, seemingly, also make good earnings for themselves, but it is their potential contribution to the local economy that is of salience here.

Table 25: Schematic table of employment categories within Weenen (farm and RNFE combined)

	Formal sector employment		Informal sector employment	
	Public sector	Private (formal) sector		
Better paid and more secure	(i) Skilled, semi-professional, state employment (teacher, nurse, etc.) (approx. 85–100)	(ii) Skilled, professional formal sector employment AND/OR lucrative self-employment (e.g. trading, agriculture) (< 50)	(iii) Lucrative forms of informal self-employment (unknown, very small group) (<20)	Only 159 people earn R12 800+ monthly (R153 600 annually); of these ten earn more than R1.2 million annually.
Middle pay and job security	(iv) Un- or semi-skilled state employment (some SAPS, elementary occupations, etc.) (approx. 100)	(v) Un- or semi-skilled, private formal sector employment (<100)	(vi) Moderately remunerated informal self-employment (unclear) (<50)	Only 708 people earn R3 200+ monthly (R38 400 annually). Of household heads earning R76 400+ per annum, 6.7% are black, 29.8% Indian and 60% white.
Lower paid and insecure		(vii) 'Casual' employment (including domestic workers) (approx. 1 000)	(viii) Survivalist informal sector employment (unclear) (350-500)	49.31% of population earn between zero and R3200 per month, whereas 4695 (15.36%) have incomes of R880 + per month (R9600 annually).
	1 516 people are employed in formal sector. 157 people (150 Africans) employed in 'private household', are best included here.		575 people are employed in informal sector.	

The core of the table above is essentially three main rows and three columns in the centre. The columns include (from left to right) those employed in the 'formal sector' (viz. for the state and in the private sector), followed by (right hand side) those working in the informal sector³⁹. From top to bottom are three successive rows or tiers, referencing the quality of employment. These range from well-paid, skilled employment or entrepreneurial earnings (top, cells i, ii and iii), to a middle tier of moderately paid and less remunerative forms of self-employment (cells iv, v, vi) and the bottom-most tier or row, poorly remunerated, low-earning and precarious or insecure forms of employment associated with semi- or unskilled work (cells vii, viii).

The top row (labelled 'Better paid and more secure') includes the skilled, and highly lucrative or remunerative forms of employment. In indicative terms these are individuals earning in excess of approximately R120 000–R150 000 per annum. Particularly for those employed by the state, this is also frequently amongst the most secure forms of employment. From left to right, cell (i) consists of those employed in professional or semi-professional occupations by the state, typically in occupations such as nurses, teachers and a small number of local managerial level employees. Within Weenen this class of public employees are likely to number in the region of approximately 85 to an upper figure of 100 individuals.

To the immediate left (viz. cell ii) are two groups, working in the private (i.e. non-state) sector. They consist of professional but also skilled workers, skilled tradesmen or semi-professionals, either self-employed or employed by others (other than the state), along with those lucratively

³⁹ Using an enterprise definition of formality (i.e. the characteristics of the enterprise), as opposed to an employment-based definition.

self-employed (trade and retail activities, etc.). These two groups are distinct but can overlap (i.e. self-employed professionals). Within Weenen this group is likely to number fewer than 50 individuals. Most of the larger-scale commercial farmers (approximately 23) and other successful business people would be subsumed within this group. Weenen is notable for the extent to which it has few professionals, such as doctors, dentists, lawyers, etc., but the small numbers of individuals falling into these occupational groups would be located here.

Finally, those earning high incomes in the informal sector (i.e. informal and unregistered enterprises) would fall into cell (iii). An emblematic example would be minibus taxi owners, unregistered shebeen (tavern) operators, or even some successful builders in the construction industry. This group is elusive, but is likely to consist of even fewer individuals than those located in the 'formal sector. It is estimated to plausibly consist of fewer than 20 people. Enterprise survey and observational data are here helpfully augmented by income data from the 2011 census.

Within Weenen only 159 individuals (amounting to 0.52% of the population) earn more than R12 800 a month (viz. R153 600 annually). All of these individuals comfortably fall into the higher income tier, whether they work in the public, private formal or informal sectors⁴⁰. If the next lowest band of the income distribution is included, that is, all individuals earning more than R6 400 monthly (R76 800 per annum) it expands the highest income group to a total of 461 individuals. However, this income band would see the group begin to overlap considerably with semi-skilled forms of employment in the employment tier below it – and is therefore inappropriately low. These numbers are, therefore, also consistent with the estimated number of higher-earning individuals. Finally, Weenen is marked by high levels of income inequality. The data reveals that ten individuals within Weenen extraordinarily earn more than R1.2 million annually⁴¹. This is a sum unlikely to be earned by the strata of state employees in Weenen. It most likely reflects entrepreneurial profits, and perhaps the proceeds of capital investments. In other words, a small cluster of local enterprise owners, possibly including some farmers, earn extremely high incomes.

In the table above, the second row consists of those involved in forms of employment that confer mid-level (i.e. 'lower middle class') incomes. These are often associated with semi-skilled or lower-skilled employment, or, alternatively, smaller owner-operator business or petty trading activities. Of this group those working for the state (viz. cell iv) are likely to include workers in elementary occupations (porters, cleaners, general labourers, etc.), employed by the local and district municipalities, schools, district hospital and police station. This group is also likely to include (lower ranking) South African Police Service members and game guards in the provincial nature reserve. While earnings are likely to be middling at best, jobs security and benefits would be comparatively generous for public employees, relative to much of the private sector. Imputing from the size of the local state institutions (police station, day hospital, provincial nature reserve, etc.) this group is likely to consist of an upper limit of approximately 100 individuals.

This broad, mid-level tier of employment and incomes also includes those employed in the private sector (viz. cell (v)), often in unskilled or semi-skilled occupations. In Weenen, some are employed in the retail trade, and the most skilled of agricultural employees (supervisors, assistant mechanics, machine minders, etc.) are likely to fall into this category. It is highly unlikely that this group

⁴⁰ Household income data is slightly confounded by the 2 028 (of 30 548) individuals – or 6.67% of the population – listed as having 'Unspecified' income.

⁴¹ This figure is all the more remarkable for the fact that incomes, especially of higher earners, are typically under-reported.

consist of more than 100 individuals (and it may well be considerably smaller). At a similar level of earnings are individuals working in the informal sector (viz. cell vi). They are likely to be earning moderate wages or (if self-employed) derive modest entrepreneurial earnings within the sector. Once again, informal sector activities are often analytically elusive, transient, and conducted from informal premises – making this a particularly difficult group to ‘capture’. However, in light of the fact that only 575 people are reportedly employed in the informal sector, and most in the informal sector earn low incomes, it is unlikely that this middle group could reasonably amount to many more than 50 individuals. It may, in fact, consist of fewer. Finally, this middle tier of employment, consisting of state, private formal and informal employment, is likely to be bound by a lower monthly income level of R6 400 (R76 800 annually), that corresponds to the income earned by the top 461 earning individuals within Weenen. Once again, this income is highly unequally distributed. Of those who earn more than R76 400 per annum within Weenen (i.e. in this middle category and the preceding higher category combined), only 6.7% are black African heads of household, as opposed to 29.8% Indian or Asian heads of household, and the majority (60%) are white heads of household.

The third and lowest tier on the above table consists of employees that have meagre incomes or earnings and engage in relatively unskilled work. Most earn less than R3 200 a month, and many of these individuals work under conditions of job insecurity (fixed-period contracts, etc.), even when employed in the formal sector. Very few state employees conventionally fall into this category. While half of Weenen’s population (49.3%) reported incomes of between zero and R3 200 per month, only 4 695 individuals (or 15.4%) have incomes over R800 per month (or R9 600 annually). This is a significant threshold because it is the income band that also contains individuals who receive the highest value of the state social grants (old age, disability, foster child and care dependency grants).

Within this larger tally of 4 695 individuals receiving over R800 monthly, only about half, or 2 248 individuals, are listed as ‘employed’. Of the 2 248 who are ‘employed’, 1 516 individuals are employed in the formal sector, 157 in private households and 575 describe themselves as being employed in the informal sector. Once again, this distribution is highly unequal and radicalised; only 14.7% of all black Africans earn more than R800 month (R9 600 annually).

The distribution of incomes and the tally of local enterprises suggest that approximately 1 000 individuals are employed (even intermittently or seasonally) in the formal sector, but under conditions of low pay. They are indicated in cell (vii). These individuals are likely to engage in semi-skilled, unskilled and menial work. This group is also highly likely to include the 157 (of whom 150 are black Africans) working in private households (presumably as gardeners, child-minders, domestic workers, etc.). Although this ‘private household’ group is separately enumerated in census data, they are, for the purposes of earning and the occupational hierarchy presented here, most appropriately included in this lowest of the three tiers.

The one-quarter of Weenen’s employed population employed in the informal sector are likely to be disproportionately clustered in the lowest tier, too (viz. cell (viii)). This group is estimated to number between a minimum of approximately 400 and a maximum of 500 individuals. It includes both those employed in the informal sector by another person and (likely larger numbers) those engaged in survivalist self-employment. Finally, this bottom tier of low-wage, low-skill employment, often with low job security, both in the formal and informal sectors, is highly likely to account for the largest proportion of employment within Weenen’s on-farm and RNFE combined, even if much of this employment may be intermittent and seasonal. (The classification of sector does not encode the duration of the employment.)

It is helpful, by way of conclusion, to reiterate the picture of employment in Weenen, and the structure of its labour market revealed by this analysis. For about 1 500 Weenen residents who derive any income from employment, their spending power is severely constrained. So, too, is the spending and investment potential of the about 250 lower middle-class earners (with a lower annual income threshold of only R40 000). In contrast, in the highest tier – Weenen’s most affluent residents – see 159 individuals earning at least R150 000 annually) are likely to be inclined to direct much of their consumption and investment outside of the local RNFE.

Summary: Factors influencing non-farm employment

This section explicates the most salient factors shaping the distribution and dynamics of rural non-farm employment.

The larger spatial context

Many of the components of the farm and rural non-farm economy – including settlements, markets and infrastructure – have clear spatial qualities. Space has important constitutive effects, evident, for instance, in relation to the historical founding of Weenen, its rise (and decline) as an agricultural centre, and even the key role of the N3 arterial route to the industrial heartland of the interior. Moreover, the existence of a highly skewed, radicalised distribution of infrastructure and agglomerations of vendors (in distant agricultural towns) are all manifestations of a specific, historically inscribed spatial regime. In this way the spatial context exerts an important influence and imposes ‘conditions of possibility’ on local markets, enterprises and ultimately employment.

Not only are social, economic and institutional dynamics constituted in space; they exist in a spatial context that is dynamic. Much of the potential for employment within Weenen’s RNFE is constrained by the town’s unfavourably close proximity to adjacent urban centres. Weenen’s farmers benefit comparatively little from access to these markets (e.g. to Estcourt), but the centres asymmetrically capture Weenen-derived income. Weenen’s unfavourable local economic dynamics are, therefore, located in space. However, space also confers opportunities for Weenen’s RNFE. For instance, one of the important ways in which primary production contributes to the RNFE is through aggregating agricultural outputs, as was evident in the case study of Papadopoulos Trading. Co-ordinating and aggregating of volume was a key strategy to reduce the costs and constraints of distance, enabling the enterprise to sequester value and (ultimately) create employment. In much the same way, a plethora of bakkie buyers and vendors relied on the relative distance of Weenen from other sources of supply to vend their wares, which contributed to some local livelihoods.

Finally, an analogue to these output market dynamics is evident within input markets, in the case of the prominent local agricultural supplier (Weenen Agri). So important was the store to overcoming constraints and costs (direct and opportunity costs) in the supply of agricultural inputs that local farmers engaged in co-ordinated action to reopen it. This enabled the store’s patrons to neutralise some of the largest constraints of distance inherent in not having ready access to hardware items. The store’s existence, moreover, made a modest, but important, contribution to employment within the local RNFE.

Integration with the national/international economy

The RNFE, and employment within it, is influenced by the terms of integration to the larger regional and national economy. This integration can be conceptualised in terms of three dimensions: firstly, its physical spatial dimensions; secondly, the 'distributional regime' of resources and money; and, thirdly, the precise characteristics of any given RNFE's integration into the larger trajectory of national development.

The first dimension of integration, namely the influence and effects of physical space was foregrounded in the preceding point. The second dimension, the place of the local RNFE relative to the larger (national) economic distributional regime and financial flows can be discerned in relation to the prominent place of fiscal transfers and social grant income in sustaining Weenen's RNFE, and the RNFEs of many small South African towns like it. Increasingly over the past decades rural towns have been sustained less by their role as supply centres for the surrounding agricultural hinterland, than as sites of low-cost living for impoverished residents (Nel and Humphrys 1999).

The third dimension of integration concerns the relationship between a particular rural locale and the larger pattern of national development. In the early phases of development the relative distance of small rural economies from urban centres confers a natural protection and facilitates the expansion of the RNFE (Wiggins 2001; Kydd and Dorwood 2001; 2002). However, over time, and in the course of urbanisation and modernisation, distance from more economically developed centres becomes a disadvantage and small towns slip in their economic viability. The relatively adverse terms of the relationship between small towns and larger urban centres is often invariant and predictable – replicated countless times in the sequence of national development across the globe.

However, as the economic and social costs of urban congestion mount, a new variety of 'post-modernisation' sometimes comes to characterise the RNFE. This development leads to a revival of the RNFE. The resurgent RNFEs are frequently rooted in outsourced industry, or location-specific advantage (e.g. tourism, lifestyle and retirement facilities, natural resource extraction, etc.). However, both the rise and the positive impacts of this post-industrial service economy are far from assured. They are contingent on factors such as locational or other advantages, a favourable path dependence, the growth of often-distinctive local industry and even fickle property markets and sentiment.

By this account, Weenen has undergone the initial rise in its ascent as a prominent agricultural centre and the subsequent economic slump. It has not undergone the second rise (and may or may not be positioned to do so). It may well be a town where the confluence of factors required to drive the post-agrarian, 'post-modernisation' economy remain absent: the peak and trough of its historical rise and decline might not be accompanied by another rise. In conclusion, by this formulation, 'integration' with national economy occurs in spatial and functional terms, but also involves the extent to which a given local rural economy (and the economic actors within it) are able to respond to and harness opportunities, especially in the agrarian transition and post-industrial economy.

Transport and communications infrastructure

The availability and efficiency of communications, transport and logistics infrastructure influence the viability of the RNFE and ultimately employment prospects within it. Infrastructure that promotes or facilitates external market linkages (viz. outside of the focal RNFE) is a double-edged sword. While it facilitates access to external markets (by minimising the costs of access,

such as time, transport costs, etc.), it conversely allows external enterprises to access the local market. In this way, efficient infrastructure can serve to reduce the economic dynamism and vibrancy of the local RNFE by subjecting it to intense external competition.

The influence of the technologies used to negotiate the constraints of distance are evident in, for example, the role of cellular telephony and the dynamics of road transport. The ubiquity of internet-enabled cell phones enables actors within the value chain to effortlessly apprise themselves of market prices within national commodity markets. This, for instance, undercuts the development of an insular 'local price' market, parochially dependent on local informational deficits or production characteristics. (These were particularly evident in relation to the externally traded commodities of potatoes and beef). Instead, both sellers and buyers within downstream output markets swiftly respond to opportunities to arbitrage and trade on significant discrepancies between local and external prices.

With regards to transport (and its ability to facilitate eternal connectedness), transport costs interface with production volumes and determine commercial viability of local enterprises and activities. A particularly graphic example of this within the focal research context is the manner in which inexpensive (in effect sub-economic) 'backhaul' rates from the Highveld to Durban make fresh produce sourced at the Johannesburg FPM inexpensive, and price competitive with Weenen-grown produce. In this way, low backhaul rates make Gauteng economically 'closer' to markets such as Estcourt, erasing the natural geographical advantage of adjacent Weenen. It does so to the detriment not only of Weenen's growers, but also, ultimately downstream of the RNFE and of employment within Weenen.

The organisation of production and input markets

The organisation of production and input markets is an equally important determinant on the RNFE, alongside spatial dynamics, patterns of integration, transport and infrastructure discussed above. Within South Africa, agricultural input supply networks are characterised by high levels of concentration, and spatially extensive supply networks. Although some inputs are more likely to have a local 'footprint' (such as non-dealer mechanical repairs, or seedling growing) many inputs, such as fertilizer, fuel, seed, mechanical equipment and agrochemicals typically do not. These qualities mean that input supply networks are dominated by a small number of comparatively large suppliers, often domiciled in distant urban centres. These large, 'efficient' suppliers generate few opportunities for employment within input supply networks in small rural towns. Their market dominance, furthermore, erodes the potential for the emergence of such local input supply networks. In this way, patterns of concentration mitigate high levels of 'local' input supply and associated rises in employment within the RNFE.

Yet there was some evidence of differences between small- and larger-scale farmers' procurement networks within the focal research setting. In terms of their first tier intermediary, SSFs are more inclined to access small or local agents (all else being equal, including the state not extensively supplying to small farmers). However, from the subsequent (viz. second tier) upward along the supply chain the intermediaries accessed by both larger- and smaller-scale farmers 'converge' on common suppliers.

In these ways, the high levels of concentration associated with inputs supply entail robust external connection on the part of agricultural producers, and serve to undercut local enterprises, along with employment within the RNFE supplying agricultural inputs.

The scale and patterning of agro-food output networks

The scale and patterning of downstream agro-food output markets serve to influence the RNFE and employment within it. South Africa's farmers undertake production and sell their produce into an agro-food system dominated by a small number of large, powerful corporate food processors and supermarkets chains. These characteristics serve to temper the proliferation of downstream markets, inhibiting the potential emergence of a panoply of intermediaries, distributors, wholesalers, transporters and retailers that might otherwise exist. It thereby constrains the development of output networks, enterprises and employment within the RNFE.

Against the general backdrop of these dynamics, there is within the research context some evidence of diversity within output markets. SSFs often (but not exclusively) engaged with informal buyers and markets, as did larger-scale farmers. This general pattern of agro-food output markets has two important consequences.

The first is, despite the fact that SSFs are, in general terms, comparatively more employment intensive and inclined to source inputs locally, the future expansion of small-scale farming may well be constrained by the foothold that larger-scale farmers currently have in local output markets.

Secondly, local output markets accessed by both larger- and smaller-scale farmers are potentially imperilled by the coming of large corporate supermarket retail. These enterprises may, therefore, well prove to be a substantial threat to existing levels of economic dynamism and employment in the RNFE.

Commodity and product characteristics

The next factor influencing the RNFE is the characteristics of horticultural commodities produced within the focal agricultural economy that feed into the RNFE. Production characteristics associated with horticulture, such as perishability and the ease with which local gluts and oversupply can develop incline producers to distribute their products with as little delay as possible. It can see them avoid local markets and increase their orientation towards external markets.

So salient are these characteristics that there are variations between commodities. So, for example, relative to cabbages, potatoes are more likely to be sent to markets outside of the RNFE. In contrast, the beef value chain is neither as short nor as 'unidirectional' as that of horticulture. This quality sees much more porosity and blurring between the categories of producers, traders, abattoirs and butcheries.

Policy frameworks and institutional support

Prevailing policy frameworks and institutions are important determinants on the RNFE. These frameworks and systems of support relate to state actions, programmes and interventions, but also encompass the manner in which opportunities are patterned by the state policy more broadly. Within the South African agrarian context a fundamental paradox is evident. Despite the fact that market deregulation and liberalisation have for two decades characterised agriculture and the state is comparatively 'absent', the state is (in relation to several aspects of agriculture) also present and interventionist. Examples of the latter are evident within the focal research context and outside of it: land reform, AgriBEE and the high levels of funding (both public and the private sector) for chicory production. The politics of racial redress and

programmes associated with it are important components of the larger political and policy frameworks that ultimately shape activities within the RNFE.

Local political and social networks

The RNFE is characterised by a pool of local power and alliances, often amongst the middle class elite within Weenen. Many of the relationships between individuals are patterned by long interpersonal links and group membership (such as the local farmers' association, etc.), along with also forms of co-ordinated action (such as reopening the co-op). These interpersonal dynamics are also evident in relation to the careful way in which actors negotiate and act in relation to gains and profits within output networks.

In sum, this means that local embeddedness – the degree of local connectedness, engagement and affinity – pertains to physical distance and commercial relationships, but also social institutions and (often informal) systems of governance over local economic activity.

Policy implications

The policy implications flowing from the research are drawn out and summarised as follows.

Rural employment is not narrowly about agriculture

Broad-based and inclusive forms of rural economic development and employment are not exclusively concerned with agriculture. Instead, much of the RNFE, including the retail and services sector, is intertwined with the wider circuits of South Africa's 'distributive regime', including public sector salaries and state cash transfers to the poor. Supporting the RNFE is, therefore, an unavoidably complex task, but cannot simply be conflated with a focus on agriculture. In many cases, agriculture may not be the core focus of policy efforts at all.

Policy needs to acknowledge the reality of declining agricultural employment

There is a need to reconcile stated policy with the long-term reality of declining agriculture employment. The long-term contraction in agricultural employment can be instructively juxtaposed with the stated policy ambition to increase agricultural employment, such as the National Development Plan's goal of a million new agricultural jobs by 2030. If policy objectives such as these are to be realised, there is the need to resolve key questions, such as: What kinds of agriculture, farming systems, and scale of producers ought to be the focus of policy support? The National Development Plan readily concedes that if the expansion of agricultural production 'takes place within the current structure of farming by merely expanding large scale commercial farming ... the potential to create additional jobs is limited' (National Planning Commission 2013: 225). Finally, there are equally unresolved questions about the larger agro-food system and its relationship to the agricultural system.

Small-scale African farmers ought to be the recipients of support

Small-scale producers not only offer the potential of generating local employment, they frequently operate at a scale and degree of informality conducive to procuring inputs and

marketing their commodities locally. In these ways they potentially have a larger impact on local economic linkages and economic dynamism than larger-scale producers. They ought to be a focus of support within state policy. However, the fact that small-scale African farmers employ potentially larger numbers of workers needs to be reconciled with the fact that these workers are, in many instances, likely to be paid lower wages relative to larger-scale commercial farmers.

There is a need to make land reform work

Two decades of land reform policy have resulted in limited real support for smallholder producers, and much of the current policy direction of land reform appears to further overlook them in favour of larger-scale, 'emergent' commercial African farmers. The state's land reform efforts have generally been piecemeal and bedevilled by a lack of sufficient post-settlement support – resulting in farms falling out of production. Therefore, an effective redistributive land reform programme also ought to be an adjunct to support for smaller-scale African producers. In this respect, the focal research context of Weenen is telling.

Weenen has favourable conditions for labour-intensive, smaller-scale horticultural production, with comparatively small landholdings, high potential land, dense irrigation infrastructure (originally designed around small-scale settler farmers), existing linkages to output markets, and firm precedents for successful smallholder production in adjacent districts (e.g. Tugela Ferry). It is a locale where smallholder agricultural production has the potential to succeed – making its absence all the more glaring. The paucity of African smallholder farmers and a more inclusive type of rural economy – even in a district that hypothetically has many of the conditions able to support it, attests to the scale of the constraints involved and consequences of the state's failure to successfully effect land reform to date.

Carefully consider and nuance policy responses to large-scale (white) commercial farmers

Particularly when the costs, distances, or their scale of production preclude them from the corporate chain supermarket-dominated agro-food system, larger-scale commercial farmers are inclined to supply local and informal markets. In this manner their (especially) downstream linkages contribute to employment and the local RNFE. However, this contribution is ambivalent because, while they contribute to local economic dynamism, they potentially also 'crowd out' the space for smallholder farmers, in what are often circumscribed and fairly finite local markets. For this reason bolstering employment in the RNFE ought to be done through supporting smallholder producers. It is they that ought to be the primary policy focus in area-based policies. However, as larger-scale farmers can be significant local employers, the policy challenge is to reconcile and manage these two competing imperatives – of growing SSFs but preserving agricultural jobs.

Understand the differential contribution of various agricultural commodities to the RNFE

Agricultural commodities are highly differentiated and heterogeneous, including the extent to which they potentially contribute to the RNFE. For instance, field crops production (grains, etc.) tends to be highly mechanised and labour 'un-intensive', while commercial quality fruit has a value chain characterised by high aggregations of supply, therefore both offer potentially muted contributions to the RNFE. However, horticulture (particularly vegetables) and livestock production offer more obvious synergies with local downstream economic and employment

linkages, and opportunities for smallholder production. Therefore there is a need to disaggregate seemingly homogenous 'agriculture' into its often highly diverse value chains. Instead of responding to a unitary 'agriculture', there is a need for policymakers to act strategically, focusing on commodity sectors with a high potential for synergies with the RNFE and conducive to smallholder forms of production.

Target and intervene within the focal agro-food retail sector

Against the backdrop of the state largely abrogating regulation of food retailers, there is a need to carefully examine this influential sector of the agro-food sector. Policy responses need to either actively limit the entry of corporate chain supermarkets into impoverished communities, or alternatively ensure that there is an appropriate level of inclusiveness into their value chains, especially by small-scale and emergent farmers. The latter objective can be effected through a combination of incentives (harnessing, for instance, the opportunities provided by state social grant disbursement and institutional food procurement), but also through regulatory conditionalities related to retailers' local business licensing, ownership, investment and procurement.

Encourage local government to better support the RNFE

There is a need to engage local government to better support the RNFE. While some of this is already done, sometimes under the ambit of Local Economic Development, local government often has an ambivalent relationship to economic informality and the informal sector more generally. There is a need to temper potential antipathy, and actively support smaller-scale and informal sector traders. Many of these interventions are comparatively easy, such as facilitating a weekly 'farmers market', others entail responding to informal traders requirements through the provision of appropriate, well-sited basic infrastructure, for example, vending facilities with covered stands, lockable overnight storage and the provision of energy and water. These basic interventions are well within the ambit and reach of even relatively unevenly capacitated local government.

Reconsider the need to direct policy attention and interventions to the homelands

With some exceptions, current patterns of rural employment interventions frequently overlook the former homelands. Yet, due to the structure of commercial agriculture, current attempts to create employment in commercial agriculture are likely to be resource intensive and temporary, as the inexorable pressures are firmly downwards and toward job shedding. Therefore Aliber et al. (2013) elsewhere suggest that in broad terms, the domain with the best prospects for the expansion of rural and agriculture employment is the former homelands. They suggest this while acknowledging that reversing the massive legacy of underdevelopment and stimulating agricultural commercialisation in the former homelands is likely to be resource intensive and may even demand grasping the nettle of security of tenure and involve vexing issues of rural governance (including the role of the hereditary chieftaincy). It also incurs the risk of potentially displacing smallholders, many of them women who augment household food security through their production.

9 Conclusion

Within South Africa, as with much of the research site, a large proportion of the population is functionally landless, 'adversely incorporated' into the larger economy, and with limited prospects for employment in the farm or non-farm economy. Despite impassioned debates about the potential contribution of agriculture and the RNFE to rural employment, there is limited evidence of this within the focal research context. In fact, the long-term trajectory of both is one of decline.

In summary, there is currently little evidence of a positive relationship between agriculture, agricultural development and employment or poverty outcomes within the South African context. On the contrary, the general trajectory of agricultural development is one likely to be accompanied by lower rates of employment. While input markets offer a dearth of opportunities for rural non-farm employment, there is cause for more optimism in relation to downstream output production networks, albeit with the caveats sounded in this research.

Quite apart from these issues about how to support the developmental potential of agriculture are the difficulties of the RNFE. The RNFE and its prospects are crucially shaped by larger spatial and structural/economic contexts, but in South Africa both are enmeshed in the larger problem of poverty and inequality. In its current form, agriculture is likely to continue to generate inequality and be constrained in its ability to contribute to the growth of the local RNFE. South Africa, therefore, presents a context where agriculture and agricultural development fail to stimulate the local RNFE.

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Appendices

Appendix 1: Production and employment calculations

1. Mr MN	SA	
	Cabbages	Potatoes
Area under production (ha)	1 375ha	1 375ha
Total production per ha (PPP ⁴²) US\$	Unclear	Unclear
Labour costs as % of total costs per ha	Unclear	Unclear
Gross margin per ha	Unclear	Unclear
Employment (person days per ha)		
• Total	318.00	318.00
• Permanent	0.00	0.00
• Casual/temporary	312.00	312.00
• Family	6.54	6.54
Daily (farm) wage US\$ day PPP	1.94	1.94
National average wage US\$ day	6.76	6.76
National farm average \$ PPP	3.86	3.86
National non-farm wage \$ PPP	9.74	9.74
National income per capita \$ PPP (per capita GDP)	42	42

Total production per hectare (PPP) US\$: output not sufficiently disaggregated. Chicory figures funded by co-op were included.

Labour costs as % of total costs per ha: Labour costs cumulatively R35 040 but total costs unclear because of vast, uncosted inputs from the co-op/state.

Gross margin per ha: output unclear.

Labour per ha: 2.75 ha

Total: 876 person days

Permanent: 0

Casual/temporary: 858

Family: 18

Daily (farm) wage US\$ day PPP. $R40 \times 0.0485 \text{ USD PPP} = \text{USD } 1.94$

Median employee monthly wage R3 033, average working days in a month 21.741 = $R139.506 \times 0.0485 \text{ USD PPP} = \text{USD } 6.76$ (PPP = exchange rate of .918 with ZAR -43.16% undervalued)⁴³

Median agricultural employee monthly wage R1 733, average working days in a month 21.741 = $ZAR 79.71 \times 0.0485 \text{ USD PPP} = \text{USD } 3.86$ (PPP = exchange rate of .918 with ZAR -43.16% undervalued)⁴⁴

Median sectoral wage (excluding agriculture) R4 370, average working days in a month 21.741 = $ZAR 201.00 \times 0.0485 \text{ USD PPP} = \text{USD } 9.74$

⁴² Purchasing Parity Pricing

⁴³ Source: World Bank data. Accessed from <http://data.worldbank.org/indicator/PA.NUS.PPPC.RF>

⁴⁴ Ibid.

2. Mr DF	SA	
	Cabbages	Potatoes
Area under prod (ha)	10 ha	10 ha
Total prod per ha (PPP) US\$	\$5 092	\$3 273
Labour costs as % of total costs per ha	24%	24%
Gross margin per ha	\$1 571	\$1 290
Employment (persons days per ha)		
• Total		
• Permanent	109.97	109.97
• Casual/temporary	12.50	12.50
• Family	91.22	91.22
	6.25	6.25
Daily (farm) wage US\$ day PPP	\$3.93	\$3.39
National average wage US\$ day	\$6.76	\$6.76
National farm average \$ PPP	\$3.86	\$3.86
National non-farm wage \$ PPP	\$9.74	\$9.74
National income per capita \$ PPP (per capita GDP)	\$42.00	\$42.00

Total production per ha (PPP) US\$: Potato R 1 050 000 (x 0.0485 USD PPP) = USD 50 925 (10ha) = USD 5 092

Cabbage R675 000 (x 0.0485 USD PPP) = USD 32 737.5 (10 ha) = 3 273.7

Labour costs as % of total costs per ha. Labour = R307 930/20ha = R15 396/ha. Potato inputs R631 000 (10ha) = R63 100/ha. R15 396/R63 100 = 24.39%

Gross margin per ha:

Potato inputs R631 000 (10ha) = R63 100/ha + labour R15 396/ha = R78 396. Output R105 000/ha – R78 396/ha = R26 604/ha (x 0.0485 USD PPP) = \$1 290/ha

Cabbage inputs R197 000 (10ha) = R19 700/ha + labour R15 396/ha = R35 096. Output R67 500/ha – R35 096/ha = R32 404/ha (x 0.0485 USD PPP) = \$1 571/ha

Labour per ha: 10 + 10 ha = 20ha (labour not disaggregated per crop, farmer resistant, potato harvesting takes more casual labour)

Total: 4 399 (person days)

Permanent: 500

Casual/temporary: 3 649

Family: 250

Daily (farm) wage US\$ day PPP: R70 (x 0.0485 USD PPP) = \$ 3.39

Median employee monthly wage R3 033, average working days in a month 21.741 = R139.506 (x 0.0485 USD PPP) = USD 6.76 (PPP = exchange rate of .918 with ZAR -43.16% undervalued)⁴⁵

Median agricultural employee monthly wage R1 733, average working days in a month 21.741 = ZAR 79.71 (x 0.0485 USD PPP) = USD 3.86 (PPP = exchange rate of .918 with ZAR -43.16% undervalued)⁴⁶

45 Ibid.

46 Ibid.

3. Mr LS	SA	
	Cabbages	Potatoes
Area under prod ha	N/A	4 ha
Total prod per ha (PPP) US\$	N/A	2 ha
Labour costs as % of total costs per ha	N/A	Unclear
Gross margin per ha	N/A	Unclear
Employment (persons per ha)		
Total	N/A	365
Permanent		0
Casual/temporary		93
Family		271
Daily (farm) wage US\$ day PPP	\$2.42	\$2.42
National average wage US\$ day	\$6.76	\$6.76
National farm average \$ PPP	\$3.86	\$3.86
National non-farm wage \$ PPP	\$9.74	\$9.74
National income per capita \$ PPP (per capita GDP)	\$42.00	\$42.00

Total prod per ha (PPP) US\$: difficult to get this; unclear on output and inputs co-op supplied.

Labour costs as % of total costs per ha. Labour person days = 73 000/4ha = 18 250/ha. Potato inputs R? (14ha) = R?/ha. R/R = ?%

Gross margin per ha:

Potato inputs R? (10ha) = ?/ha + labour R18250/ha = R ? Output R?/ha - R?/ha = R?/ha (x 0.0485 USD PPP) = \$?/ha

Labour per ha: 4ha = 365 person days/ha

Total: 1 460

Permanent: 0

Casual/temporary: 373

Family: 1 082

Daily (farm) wage US\$ day PPP: R50 (x 0.0485 USD PPP) = \$2.42

Median employee monthly wage R3 033, average working days in a month 21.741 = R139.506 (x 0.0485 USD PPP) = USD 6.76 (PPP = exchange rate of .918 with ZAR -43.16% undervalued)⁴⁷

Median agricultural employee monthly wage R1 733, average working days in a month 21.741 = ZAR 79.71 (x 0.0485 USD PPP) = USD 3.86 (PPP = exchange rate of .918 with ZAR -43.16% undervalued)⁴⁸

47 Ibid.

48 Ibid.

4. Mr MT	SA	
	Cabbages	Potatoes
Area under prod ha	5.0 ha	7.5 ha
Total prod per ha (PPP) US\$	\$2 425	\$2 328
Labour costs as % of total costs per ha	26.16%	43.58%
Gross margin per ha	\$773	\$659
Employment (persons days per ha)		
Total		
Permanent	108.66	161.33
Casual/temporary	26.66	26.66
Family	82.00	134.66
	0.00	0.00
Daily (farm) wage US\$ day PPP	\$3.15	\$3.15
National average wage US\$ day	\$6.76	\$6.76
National farm average \$ PPP	\$3.86	\$3.86
National non-farm wage \$ PPP	\$9.74	\$9.74
National income per capita \$ PPP (per capita GDP)	\$42.00	\$42.00

Total prod per ha (PPP) US\$: Potato R 360 000 (x 0.0485 USD PPP) = USD 17460 (17.5ha = USD 2328/ha)

Total prod per ha (PPP) US\$: Cabbage R 250 000 (x 0.0485 USD PPP) = USD 12126 (15ha = USD 2425/ha)

Cabbage labour costs as % of total costs per ha. Labour = R35 314 (15ha) = R7 063/ha. Cabbage inputs R135 000 (15ha) = R27 000/ha. R7 063/ha/R27 000/ha = 26.16% labour cost

Potato labour costs as % of total costs per ha. Labour = R78 087/7.5ha = R10 411/ha. Potato inputs R180 000 (7.5ha) = R24 000/ha. R10 411/ha/R24 000/ha = 43.38% labour cost

Gross margin per ha:

Potato inputs R180 000 (17.5ha) = R24 000/ha + labour R10 411/ha = R 34 411. Output R48 000/ha – R34 411/ha = R13 589/ha (x 0.0485 USD PPP) = \$659/ha

Cabbage inputs R135 000 (15ha) = R27 000/ha + labour R7 063/ha = R 34 063/ha.
Output R50 000/ha – R34 063/ha = R15 937/ha (x 0.0485 USD PPP) = \$773/ha

Daily (farm) wage US\$ day PPP: R65 (x 0.0485 USD PPP) = \$3.15

Median employee monthly wage: R3 033, average working days in a month 21.741 = R139.506 (x 0.0485 USD PPP) = USD 6.76 (PPP = exchange rate of .918 with ZAR -43.16% undervalued)⁴⁹

Median agricultural employee monthly wage: R1 733, average working days in a month 21.741 = ZAR 79.71 (x 0.0485 USD PPP) = USD 3.86 (PPP = exchange rate of .918 with ZAR -43.16% undervalued)⁵⁰

49 Ibid.

50 Ibid.

5. Mr SGF	SA	
	Cabbages	Potatoes
Area under prod ha	20 ha	25 ha
Total prod per ha (PPP) US\$	3 516	3 880
Labour costs as % of total costs per ha	11.83%	31.8%
Gross margin per ha US\$	1 316	1 321
Employment (persons per ha)		
Total	1 130	4 410
Permanent	600	610
Casual/temporary	530	3 800
Family	0	0
Daily (farm) wage US\$ day PPP	\$4.60	\$4.60
National average wage US\$ day	\$6.76	\$6.76
National farm average \$ PPP	\$3.86	\$3.86
National non-farm wage \$ PPP	\$9.74	\$9.74
National income per capita \$ PPP (per capita GDP)	\$42.00	\$42.00

Total prod per ha (PPP) US\$: Potato R 2 000 000 /25ha = R80 000/ha (x 0.0485 USD PPP) = USD 3880

Total prod per ha (PPP) US\$: Cabbage R1 450 000/20ha = R72 500/ha(x 0.0485 USD PPP) = USD 3516

Potato Labour costs as % of total costs per ha. Labour = R 418 950/25ha = 16 758/ha. Potato inputs 900 000 (25ha) = R36 000/ha. R16 758+R36 000 = 52 758 = 31.8%

Cabbage Labour costs as % of total costs per ha. Labour = R 107 350/20ha = 5367/ha (implausibly low) Cabbage inputs (unclear) 800 000(20ha) = R40 000/ha. R45 367/R5 367 = 11.83%

Gross margin per ha: Potato inputs R900 000 (25ha) = R36 000/ha + labour R16 758/ha = R 52 758. Output R80 000/ha – R52 758/ha = R27 242/ha (x 0.0485 USD PPP) = \$1321/ha

Gross margin per ha: Cabbage inputs R800 000 (20ha) = R40 000/ha + labour R5 367/ha = R 45 367 Output R72 500/ha – R45 367/ha = R27 133/ha (x 0.0485 USD PPP) = \$1316/ha

Potato labour per ha: 25ha (xR95/day)
Total: 4 410 (person days)
Permanent: 610
Casual/temporary: 3 800
Family: 0

Cabbage labour per ha: 20ha (108)
Total: 1 130 (person days)
Permanent: 600
Casual/temporary 530
Family 0.00

Daily (farm) wage US\$ day PPP: R95 (x 0.0485 USD PPP) = \$ 4.6

Median employee monthly wage: R3 033, average working days in a month 21.741 = R139.506 (x 0.0485 USD PPP) = USD 6.76 (PPP = exchange rate of .918 with ZAR -43.16% undervalued)⁵¹

Median agricultural employee monthly wage: R1 733, average working days in a month 21.741 = ZAR 79.71 (x 0.0485 USD PPP) = USD 3.86 (PPP = exchange rate of .918 with ZAR -43.16% undervalued)⁵²

⁵¹ Ibid.

⁵² Ibid.

6. Mr RS	SA	
	Cabbages	Potatoes
Area under prod (ha)	5 ha	18 ha
Total prod per ha (PPP) US\$	\$3 152	\$5 052
Labour costs as % of total costs per ha	45.19%?	30.36%
Gross margin per ha	\$884.25	\$1511
Employment (persons days per ha)		
Total	27000	279.88
Permanent	135.60	55.50
Casual/temporary	134.40	224.38
Family	0.00	0.00
Daily (farm) wage US\$ day PPP	\$3.73-\$4.27	\$3.73-\$4.27
National average wage US\$ day	\$6.76	\$6.76
National farm average \$ PPP	\$3.86	\$3.86
National non-farm wage \$ PPP	\$9.74	\$9.74
National income per capita \$ PPP (per capita GDP)	\$42.00	\$42.00

Total prod per ha (PPP) US\$: Potato R1 875 000 (x 0.0485 USD PPP) = USD 90 937.5 (18ha) = USD 5 052

Total prod per ha (PPP) US\$: Cabbage R325 000 (x 0.0485 USD PPP) = USD 15 762.5 (15 ha) = USD 3 152.5

Labour costs per ha: cabbage 5ha = R111 342/5ha = R22 268/ha

Permanent: 672 x R88 = R 59 136

Casual/temporary 678 x R77 = R52 206

Family = 0

Labour costs as % of total costs per ha: Labour = R 111 342/5ha = R22 268/ha. Inputs R135 000 (15ha) = R27000/ha. R27 000+R22 268 = R49268/ha labour = 45.19% (seems very high)

Labour costs per ha: Potato 18 ha = R399 003/18ha = R22 167/ha

Permanent 1 000 x R88 = R88 000

Casual/temporary 4 039 x R77 = R311 003

Family = 0

Labour costs as % of total costs per ha: Labour = R399 003/18ha = R22 166/ha. Potato inputs (R915 000/18ha) = R50 833/ha. R22 166+R50 833 = 72 999 30.36%

Gross margin per ha:

Potato inputs (R915 000/18ha) = R50 833/ha + labour = R399 003/18ha = R22 166/ha = R72 999/ha

Output R1 875 000/18ha = R104 166 – costs R72 999/ha = R31 167/ha (x 0.0485 USD PPP) = \$1 511/ha

Cabbage inputs: R135 000 (15ha) = R27 000/ha + labour R111 342/5ha = R22 268/ha = R49 268 Output R67 500/ha – R49 268/ha = R18 232/ha (x 0.0485 USD PPP) = \$884.25/ha

Daily (farm) wage US\$ day PPP: R77 – R88 (x 0.0485 USD PPP) = \$3.73 – \$4.27

Median employee monthly wage: R3 033, average working days in a month 21.741 = R139.506 (x 0.0485 USD PPP) = USD 6.76 (PPP = exchange rate of .918 with ZAR -43.16% undervalued)⁵³

Median agricultural employee monthly wage: R1 733, average working days in a month 21.741 = ZAR 79.71 (x 0.0485 USD PPP) = USD 3.86 (PPP = exchange rate of .918 with ZAR -43.16% undervalued)⁵⁴

⁵³ Ibid.

⁵⁴ Ibid.

Appendix 2: Cabbage input supply networks for large-scale commercial farmers

Figure 11: Map of linkages from large-scale commercial farmers to tier 2 input suppliers for cabbages



Figure 12: Map of linkages from large-scale commercial farmers to tiers 2 and tier 3 input suppliers for cabbages

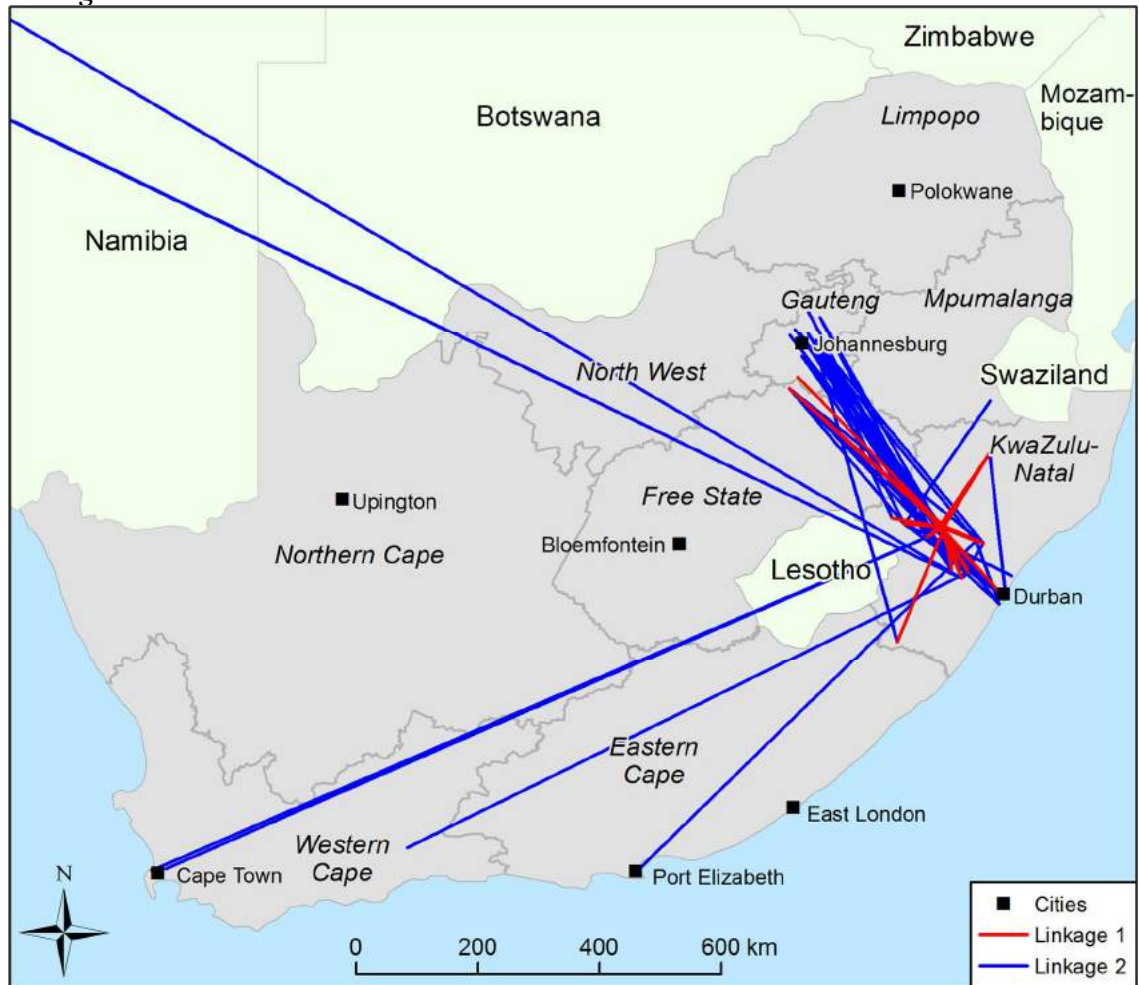
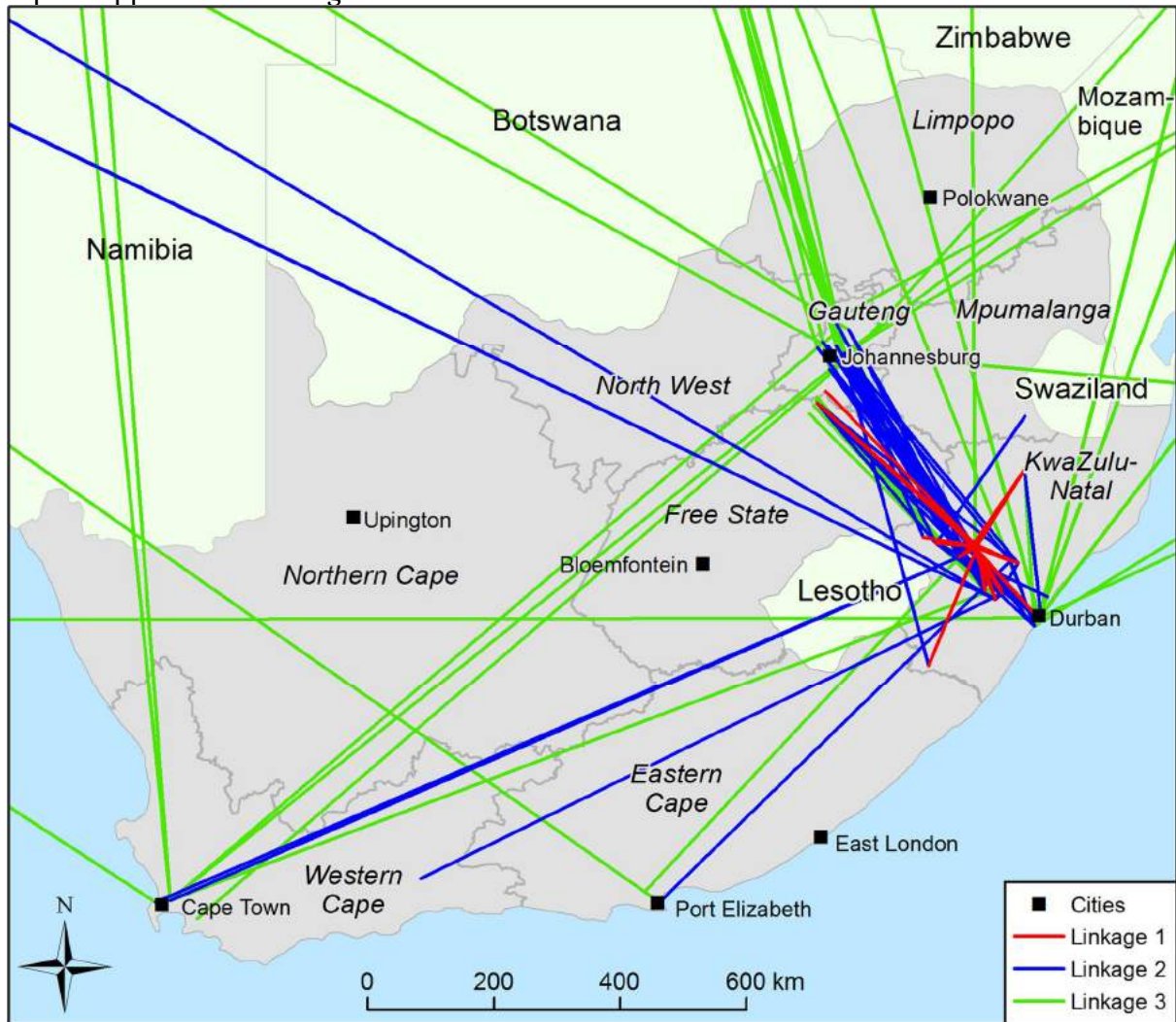


Figure 13: Map of linkages for large-scale commercial farmers to tiers 2 and 3 (and beyond) input suppliers for cabbages



Appendix 3: Cabbage input supply networks for SSFs

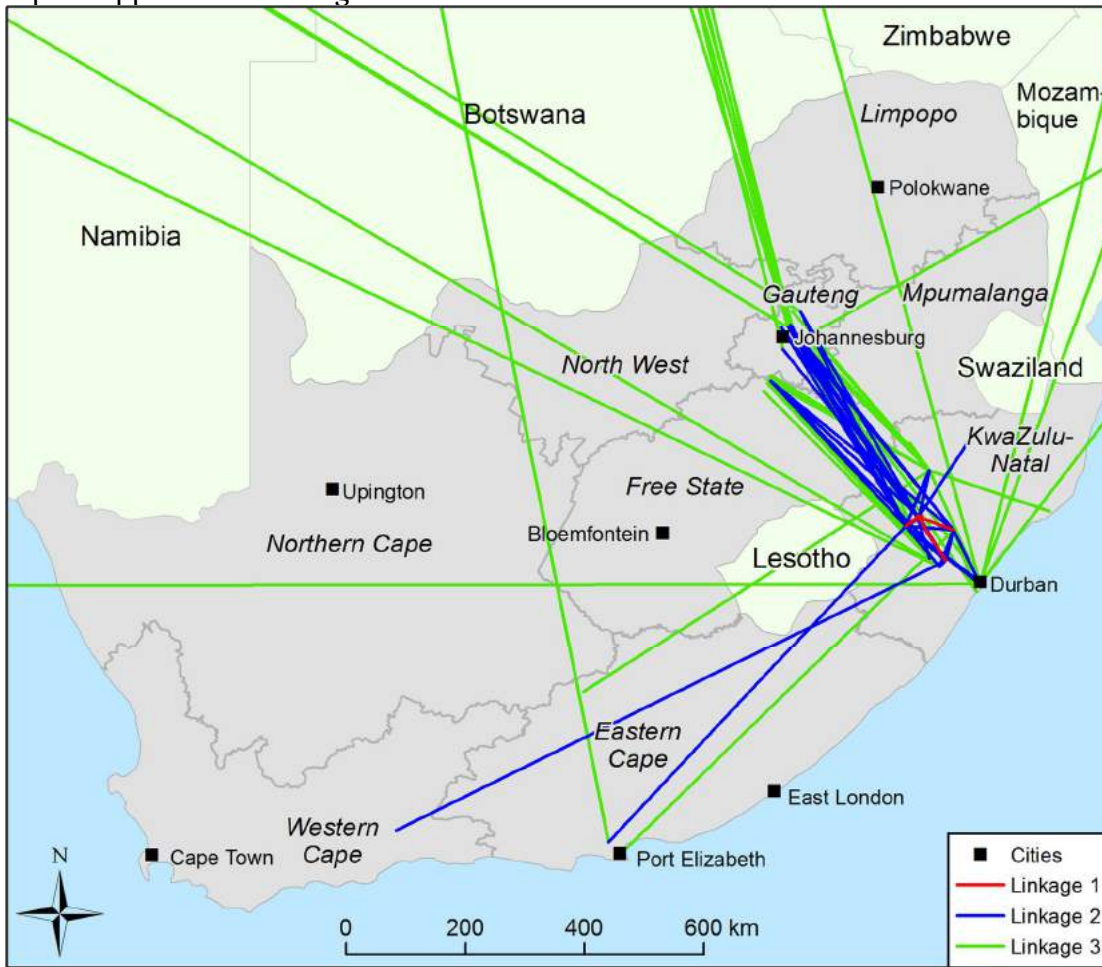
Figure 14: Map of linkages from SSFs to tier 2 input suppliers for cabbages

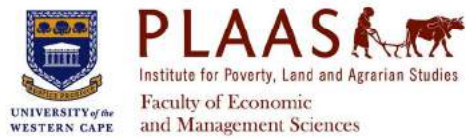



Figure 15: Map of linkages for SSFs to tiers 2 and 3 input suppliers for cabbages



Figure 16: Map of linkages from small-scale commercial farmers to tiers 1, 2, 3 (and beyond) input suppliers for cabbages





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