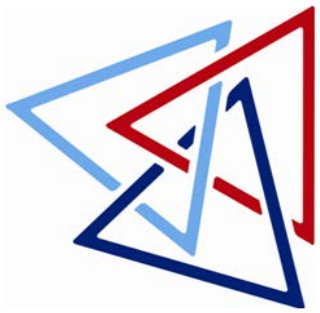

Food poverty, hunger and household production in rural Eastern Cape households

Mike Rogan and John Reynolds

Abstract

More than two decades since the advent of democracy in South Africa, the place of small-scale agriculture in rural development, poverty alleviation and food security remains ambiguous and highly contested. However, there is now some new evidence that official income poverty estimates in South Africa may be underestimating the contribution of rural, land-based livelihoods when measuring household well-being. This paper aims to explore this possibility further by identifying how household production activities are associated with improved food security among rural Eastern Cape households in the former homelands. The analysis is based on data from Statistics South Africa's 2008/9 Living Conditions Survey and its annual General Household Surveys. The paper investigates trends and key patterns in household production in the Eastern Cape and compares these with other regions of South Africa. One of the key findings is that hunger levels are lower among farming households in the Eastern Cape even though a higher percentage of these households (relative to non-farming households) live below the national food poverty line. The paper concludes by discussing some implications for policy as well as the role of household production activities in meeting immediate food security needs.

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Food poverty, hunger and household production in rural Eastern Cape households

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1. Introduction

More than twenty years since the advent of democracy in South Africa, the place of agriculture in rural development, food security and poverty alleviation remains ambiguous and highly contested. This is due, in part, to the uncertainty surrounding land reform processes (and outcomes), a gradual process of 'de-agrarianisation', a poverty literature which has tended to underestimate the contribution of household production to household livelihoods and a number of fundamental (and often ideological on both sides) disagreements on the proper or 'potential' role of agriculture in rural development and poverty alleviation. Against this backdrop, there are at least two strands of the literature which require a stronger empirical basis.

First, there is a lack of consensus on the actual extent of subsistence farming, household production and small-scale farming in South Africa[2]. The figure of four million subsistence farmers (from 2.5 million households) (e.g. Aliber & Hart, 2009) is often cited in the literature but there are a number of discrepancies in the way 'subsistence farming' is defined and measured. Estimates of the percentage[3] of households involved in agriculture range from 12.6 per cent of all South African households (May & Carter, 2009) or 26.4 per cent of black households (Pauw, 2007) to 47 per cent of black rural households (Palmer & Sender, 2006). More broadly, the underestimation of the importance of both small-scale agriculture (Ardington & Lund, 1996; Lahiff & Cousins, 2005) or land-based livelihoods (Shackleton, Shackleton, & Cousins, 2001) in South Africa has been well-documented.

[1] This work was done with the support of a grant awarded to the Institute of Social and Economic Research (ISER) from the REDI 3x3 project on Employment/Unemployment, Income Distribution and Inclusive Growth.
[2] These terms are often used interchangeably in the literature. The questions used to measure household involvement in agriculture (i.e. from the General Household Surveys, the Income and Expenditure Surveys, the Labour Force Surveys and the Living Conditions Survey) tend to capture a fairly wide range of activities and, while they are not strictly comparable, the emphasis is largely on the household 'production' of agricultural goods (whether for sale or own consumption). The QLFS question specifically mentions 'own consumption' but an analysis of the reasons for agriculture from the GHS and LCS would suggest that over 90 per cent of production identified in both is for own consumption. Much of the variation used in describing these activities, therefore, seems to originate from the literature and not necessarily from the survey instruments themselves.
[3] Similarly, estimates of the *number* of subsistence farmers have ranged from 1,3 million (May & Carter, 2009; Tregurtha, 2009) or 2.1 million (Coetzee, 2003) producers, on the lower end, to four million producers from 2.5 million households (Aliber & Hart, 2009) at the upper end.

There is also evidence from the poverty literature that the size of the small-scale agricultural sector tends to be underestimated in South Africa. Meth (2006: 17) observes that the under-estimation of subsistence agricultural activities in the country's national household surveys explains the failure of these surveys to identify the livelihood strategies of the 'relatively large number of people with the apparent ability to survive on thin air.' A recent analysis of subjective poverty in South Africa (Posel & Rogan, 2014) has also suggested that official income poverty estimates in South Africa may be underestimating the contribution of rural, land-based livelihoods when measuring household well-being.

Second, but related to the above, the existing literature is divided on the outcomes, if any, associated with household production in South Africa. On the one hand, a number of studies have found evidence indicating the importance of small-scale agriculture to food security (Aliber & Hart, 2009; Baiphethi & Jacobs, 2009; Pauw, 2007; Pienaar & von Fintel, 2014), nutrition (Hendriks, 2003; Kirsten, Townsend, & Gibson, 1998; van Averbeke & Khosa, 2007) or household income (Baiphethi & Jacobs, 2009; Pauw, 2007). On the other hand, others (Bradstock, 2005; De Swardt, 2003; Misselhorn, 2005; Palmer & Sender, 2006; Sender, 2002, 2012) have shown that small-scale farming is not a viable, sufficient or desirable solution to rural poverty or household food insecurity. This latter body of work has suggested that the idea of efficient small-scale household farming activities is a fallacy (Sender & Johnston, 2004) and that, even at a subsistence level, households that farm are no less dependent on market sourced foods than are non-farming households (Palmer & Sender, 2006)[4]. This stance seems to be supported by the popular notion that the penetration of large supermarket chains into rural parts of the country has impacted on small-scale agriculture (du Toit & Neves, 2007; Murisa, 2013).

Not surprisingly, these disparate views on the current level and role of small-scale agriculture and household production as a livelihood strategy for rural households in South Africa have yielded very different policy recommendations. Even if one does take the view that agriculture is important to rural households, there are a number of differing strategies to consider in identifying how best to support subsistence activities. In broad terms, the prospects for accumulation from above or from below (see Bernstein, 1998) seem inextricably linked to whichever view of the role of household production is embraced. For example, and as Aliber and Hall (2010) have identified, policy could focus on food security (without accumulation) under the assumption that the goal should be to support households to produce more food for their own consumption. Alternatively, policy could create a bridge to promote either commercialisation (accumulation of the few) or diversification and income

[4] For a useful overview of this debate and an argument to the contrary, see Ellis and Biggs (2001)

generation (accumulation from below) among the large number of rural households who are currently producing for own consumption only.

Within the literature which does not view small-scale agriculture as a viable strategy for poverty alleviation, the more extreme option to place a moratorium on support for the small-scale agricultural sector has been put forward recently (see Sender, 2014). More specifically, the withdrawal of support to smaller farmers has been suggested in favour of a strategy which 'backs the winners' in the form of large-scale and export oriented agriculture in order to revive rural wages (Palmer & Sender, 2006; Sender, 2012)[5]. This approach often cites a lack of evidence for the contribution of small farmers to either agricultural output or employment (Sender, 2012). The main thrust of this recommendation is that interventions or support packages aimed at home producers or community gardens are over-romanticised and tend to serve as a distraction to some of the real challenges associated with rural development (Sender, 2014).

This paper aims to contribute to these debates in South Africa with a particular focus on agriculture in the Eastern Cape province of South Africa. The reasons for this are two-fold. First, provincial differences in agricultural activities (and policies) are significant due to variations in access to arable land, rainfall and the suitability of terrain (Palmer & Sender, 2006). The Eastern Cape is the province with the second highest (after Limpopo) percentage of African households reporting agricultural activities (38 per cent) and is home to roughly 22 per cent of the 2.4 million African households in South Africa which are involved in some type of agriculture (own calculations from the 2012 General Household Survey). Second, one of the most recent and far reaching policy recommendations concerning the reduction of support for 'food self-sufficiency' interventions[6] is based specifically on an analysis of the Eastern Cape agricultural sector (see Sender, 2014).

The analysis presented in this paper was therefore driven by two objectives. The first was to identify the extent to which rural African households in the Eastern Cape include small-scale agriculture in their livelihood activities. The second was to explore whether and how household production activities are associated with improved food security. In addressing this second objective we use a food poverty lens to understand how households in rural areas who are identified as 'food poor' are able to achieve food security and whether and how agricultural production plays a role. From a policy perspective, any investigation of household production in the province requires a consideration of the potential impacts at the

[5] Crucially, this proposed strategy also hinges on a greater level of state intervention in the commercial agricultural sector together with improved wages and a higher union density in the sector.
[6] The Eastern Cape's flagship programme to improve household food security is the 2003 Siyazondla Homestead Production Programme which aims to diversify household livelihood strategies while encouraging surplus cultivation.

household level of a move away from support packages such as those linked with the Eastern Cape Provincial Government's Massive Food Programme, and how interventions such as the Siyazondla Homestead Food Production Programme, the Integrated Agricultural Infrastructure Development Programme, as well as support to the formation of agricultural cooperatives might be affected by the proposed change (e.g. by Sender, 2014) in agricultural support policy. These policy interventions are considered in more detail in a companion paper.

The remainder of this paper is structured as follows. The following section reviews the literature on small-scale or subsistence farming in South Africa and links this body of work with a parallel literature on household food security. Section three identifies the data sources and methods that we use to analyse household production, food poverty and food security. In section four, we present the results in two parts. We begin with a descriptive analysis and a series of estimates of the extent and the characteristics of small-scale household agriculture in both South Africa and the Eastern Cape. Next, we explore whether and how these small-scale activities are associated with household food security as measured by self-reported levels of hunger. Finally, section five discusses the findings in relation to the existing literature as well as some of the recent policy recommendations on small-scale and subsistence agriculture.

2. Review

2.1 Small-scale or subsistence agriculture in South Africa

Extent of farming and trends

Despite the widespread claims of de-agrarianisation in South Africa, one of the few empirical studies (Aliber & Hart, 2009) of subsistence agriculture has suggested that the actual number of these farmers has been consistent and may actually have *increased* (between 2001 and 2007). These figures come from the erstwhile bi-annual Labour Force Surveys and suggest that roughly four million black South Africans are involved in subsistence agriculture. However, there is some inconsistency, even in the empirical literature, on this point and a second study, based on data from the National Income Dynamics Study (NIDS), has provided evidence for a *decrease* (e.g. from 35 per cent to 16 per cent of households in the tribal authority areas) in subsistence activities between 2008 and 2012 (Daniels, Partridge, Kekana, & Musundwa, 2013). An important caveat here is that, again, definitions of subsistence agriculture or household production are not consistent in the literature and it is possible that this difference may be even greater between studies based on data collected by Statistics South Africa (e.g. the GHSs and the LFSs) and other survey organisations (e.g. NIDS). The other caveat, of course, is that the two studies described here are also analysing different time periods.

In terms of provincial differences, most studies identify the Eastern Cape, Limpopo and KwaZulu-Natal as the provinces with the highest levels of household production or small-scale agriculture. Aliber and Hart (2009), for example, show that the Eastern Cape has the highest provincial share of black 'own account' farmers. There are only a handful of studies, however, which have considered trends in small-scale agriculture in the province. Bank (2005), in citing a number of surveys and case studies conducted over a twenty year period, suggests that there has been a decrease in household production in the Eastern Cape over this period. He argues that the decline of family farming in the province is the result of structural shifts in the economy, rural livelihoods and household formation over a longer period of time. Andrew and Fox (2004), on the other hand, argue that there has not necessarily been a decrease in small-scale agriculture but rather a change in cultivation practices (i.e. an increase in home gardens)-albeit the evidence is from a single case study (see also Fay, 2013).

Reasons for farming

While the extent of (and changes in) household production among South African and Eastern Cape households is not clear, there do appear to be two points of consensus in the literature. The first is related directly to the reasons that households engage in farming activities. For example, there is now a well-documented trend towards agriculture as an additional food source (as opposed to a main source of food or as a source of income) (Baiphethi & Jacobs, 2009). The second point is that the existing support packages and policies intended to support small-scale agriculture have not been successful (Aliber & Hart, 2009; Palmer & Sender, 2006; Pienaar & von Fintel, 2014; Tregurtha, 2009) and extension services, in particular, have been in decline (du Toit & Neves, 2007). Case study evidence from Limpopo suggests that government support for small-scale farming does not reach many households and, where it does, it seems to target households with access to irrigation water. Moreover, the type of support generally provided (usually in the form of extension officers) does not seem appropriate for producers who do not have resources for agricultural inputs (Aliber & Hall, 2010; Aliber & Hart, 2009; Tregurtha, 2009).

In relation to the Eastern Cape, Pauw (2007) finds that agricultural households in the province have the second lowest (after Limpopo) share of households in which agriculture is a meaningful source of income. In other words, Eastern Cape agricultural households are far more likely to be reliant on other, non-agricultural, sources of income (relative to farming households in other provinces). Linking this with trends in household production, there is some qualitative evidence from the Eastern Cape which suggests that a broader process of de-agrarianisation has coincided with the concentration of activities in smaller garden plots (homestead gardens) as opposed to larger cultivated fields (du Toit & Neves, 2007) - (see also Aliber & Hart, 2009; Andrew & Fox, 2004).

The characteristics of farming households

A final section of the literature on household production is concerned specifically with the characteristics of households which are engaged in agriculture. Du Toit and Neves (2007) have suggested that smallholder farming remains an important livelihood strategy in the Eastern Cape but that there is a large degree of variation in terms of which households are able to benefit from household production. In particular, they show that it is often not the poorest households which engage in agriculture and this may be due to the levels of resources which are typically required for agricultural inputs. Their work also supplements the existing survey analyses by showing that the process of de-agrarianisation is not a simple or linear process. Rather, they show that some households continue to benefit from production (particularly those that have other regular or formal income sources) while the more vulnerable households have not been able to benefit from agriculture to the same degree as in the past (du Toit & Neves, 2007; Neves & Du Toit, 2013). One fairly popular notion which seems to support this finding is that women and female-headed households are less likely to farm (Palmer & Sender, 2006; Sender, 2002). Aliber and Hart (2009), however, have argued that, contrary to this conventional wisdom, the subsistence sector has a high number of both women and young people (even though the rate of participation in agriculture is lower for younger people).

2.2 Hunger and poverty

Against the backdrop of uncertainty surrounding the actual level of household production in South Africa, identifying how 'important' agriculture is to household livelihoods is not a straightforward process. As outlined above, there are two main ways in which household production has been linked with positive human development outcomes. The first is through the ability of households that farm to avoid hunger or malnutrition by supplementing their diets through cultivation. Second, household production can reduce income poverty if households are able to sell their surplus production for cash (or in-kind goods) or redirect money that *would have been* spent on market procured food items by, instead, consuming food that they have cultivated themselves. This is, of course, a highly stylised description of the potential link between agriculture and human development and this section now reviews the literature on these two outcomes in greater detail.

Household food security is distinct from national food security in that the key issue is access to food and not the aggregate level of food production. There is a large literature on the measurement of household food security and a range of different approaches to its conceptualisation. One common method is to analyse the question in household surveys which asks whether (and how often) any member of the household has gone hungry over a specified time period. This question is relatively popular and has been standardised in a

number of South African surveys. An analysis of the NIDS data (May & Carter, 2009) which uses this question suggests that about 29 per cent of all households in South Africa experience at least some degree of adult hunger.

One of the key findings (Aliber, 2009; Pienaar & von Fintel, 2014) from the literature on household food security in South Africa is that child hunger levels have largely mirrored income poverty trends by decreasing in the early 2000s (following an initial spike in the late 1990s). This decrease in food security took place at the same time that, on the one hand, food prices increased (Hart, 2009) but that, on the other hand, social grant expenditure increased substantially (Pienaar & von Fintel, 2014). Not surprisingly, hunger levels remain somewhat higher in the Eastern Cape with the OR Tambo district being one of the two districts in South Africa with the highest rate of severe (often/always) household hunger levels (Aliber, 2009).

Perhaps the most relevant way to link income poverty with agriculture is to consider food poverty. This is the level below which, according to Statistics South Africa (2012), households do not have enough resources to meet even their most basic food needs. While any level of income poverty could be expected to be of interest in terms of the link between household production and poverty reduction, the food poverty line is particularly relevant given its association with subsistence consumption and the expectation that even low levels of household production could have a noticeable impact on hunger. In 2008, about 26.3 per cent of all South Africans lived in a household which was identified as food poor (Statistics South Africa, 2012). Once again, the Eastern Cape stands out from the country as a whole and is the province with the second highest (after Limpopo) incidence of food poverty (36 per cent of the province's population lives in a household which is unable to meet its basic food requirements).

2.3 Agriculture and household food security

Agriculture and hunger

One of the key motivations for investigating household production or subsistence agriculture is that low income households typically spend a large portion of their income (e.g. often between 60-80 per cent in sub-Saharan African countries) on food purchases (Baiphethi & Jacobs, 2009). While many rural households employ agricultural production as one component of often very diverse livelihoods, one suggestion has been that the poorest households rely more on agriculture to survive (Baiphethi & Jacobs, 2009). Similarly, Baiphethi and Jacobs (2009) argue that improved inputs for small-scale farmers is a crucial strategy for the mitigation of food insecurity. In most sub-Saharan African countries, levels of food insecurity are higher in urban areas where households are not able to grow their own food or take advantage of natural resources (Baiphethi & Jacobs, 2009).

The strongest evidence in support of the policy relevance of interventions targeted at small-scale farming households in South Africa comes from two recent studies which explore food security in the former homeland areas. First, Pienaar and von Fintel (2014) find that small-scale farming activities in the former homelands have had an impact on both household income and food security. In particular, they show that households that report the sale of farm products as their main income source are significantly less likely to experience hunger relative to households that rely on wages. Moreover, their analysis also suggests that, in the homeland areas, farming as a main food source is significantly correlated with lower hunger risks relative to non-homeland households. Within the homeland areas, larger farming activities as well as cultivation in school and community gardens seem to have a particularly important role in food security and the authors suggest that this might be due to knowledge pooling and risk sharing (Pienaar & von Fintel, 2014). The key conclusion from the study is that household production played at least some role in the convergence in household food security (proxied by hunger) between homeland and non-homeland regions in South Africa in the 2000s. However, they show also that social grants (and particularly the old age pension) and government loans (specifically for farming) are important protectors against hunger among farming households in the former homelands (Pienaar & von Fintel, 2014).

Second, von Fintel and Pienaar (2015) extend their work on food security by examining the role that social grants play in supporting small-scale farming to reduce hunger. In this second paper they find that the state's old age pension enables small-scale farming and that this, in turn, significantly reduces the risk of child hunger in these households (von Fintel & Pienaar, 2015). The main contribution of this analysis is, therefore, that household production appears to be the channel through which social grant income is used to protect against food security in some of the poorest households in the country.

Agriculture and income/poverty

With regard to household production and income, two studies (Palmer & Sender, 2006; Pauw, 2007) based on data from the 2000 Income and Expenditure Survey (IES) have arrived at very different conclusions about the role and importance of small-scale agriculture in South Africa. While most of the key findings from these two papers are consistent, one difference is that Pauw (2007) suggests, based on the finding that black commercial farmers have income levels similar to those of black non-agricultural households (and higher than subsistence and farm workers households), that the key strategy for rural development should be some 'degree of commercialisation'. In contrast, Palmer and Sender (2006) have argued that most farming households do not earn any income from their production and those that supplement their diets (i.e. through own consumption) are just as reliant on market-sourced

food as non-farming households. Palmer and Sender (2006) therefore argue that the poorest rural households do not see household production as an escape from poverty.

However, Aliber (2009) using the 2005/6 IES found evidence that the gap in household food share expenditure between rural and urban households (at each income decile) is likely explained by 'self-provisioning'. He finds that rural households in the lower half of the income distribution, spend 15 per cent less on food than their urban counterparts (Aliber, 2009). Provincial differences are also significant with Eastern Cape households reporting some of the lowest levels of per capita expenditure on food in the country (Aliber, 2009). Moreover, the well-documented decrease in reported levels of hunger (Aliber, 2009; Pienaar & von Fintel, 2014) has been linked with lower food expenditure in rural areas as an indication that household production is more important than is commonly understood (Aliber, 2009). One other finding relating to the Eastern Cape is that, while income poverty is very high among black agricultural households, the difference between agricultural and non-agricultural poverty (among black households) is actually much smaller in the Eastern Cape and Limpopo (compared with other provinces and South Africa more broadly) (Pauw, 2007).

The link between agriculture and poverty is not necessarily straightforward, however, and, in one of the most in-depth analyses of rural livelihoods in South Africa, Neves and du Toit (2013) illustrate the way in which household production forms only one part of the survival strategies of rural households. In short, they find that households engage in '…complex repertoires of productive economic activity, which include – but are not limited to – agriculture'(Neves & Du Toit, 2013: 101). Perhaps one of the reasons that economic analyses of rural livelihoods tend to underestimate the value of household production is that the occupation of rural homes (while cultivating) itself is a way of establishing and maintaining property rights as an economic safety net in case of employment loss, death, illness or retrenchment (Neves & Du Toit, 2013). This work is particularly instructive to our present analysis as it provides an in-depth qualitative analysis in the same areas covered by the statistical analysis presented in this paper (i.e. the former homelands of the Eastern Cape).

Finally, given the importance of land reform in post-apartheid South Africa, it is not surprising that at least some of the debate around small-scale agriculture is linked directly to land redistribution policies. Sender and Johnston's (2004) critique of South Africa's land distribution programmes is related very strongly to 'debunking' the increasingly popular notion that small farming activities are more efficient than larger farms. Their central claim is that, 'efficient and egalitarian "family-operated" small farms that are likely to provide an escape from ***poverty*** for millions of rural Africans' do not exist (2004:144- own emphasis). They therefore argue that there is no evidence for either the greater productivity or labour intensity per hectare for small-scale farmers. Indeed, the evidence on the impact of South

Africa's land reform programme has been somewhat mixed (Bradstock, 2005) but the most comprehensive evaluation, to date, does suggest that land reform beneficiaries have achieved higher levels of household income as a result of the programme (Keswell & Carter, 2014).

3. Data and methods

The analysis in this paper makes use of data from a number of household surveys, but the two primary sources are the 2008/9 Living Conditions Survey (LCS) and the most recently available (2012) General Household Survey (GHS) at the time of analysis. These two nationally representative household surveys both collect relatively comprehensive information on household agricultural activities, food security and household income or expenditure. It is therefore possible, using these two data sources, to compare directly two measures of household well-being (i.e. household food security and income poverty) with agricultural activities.

Household food security is proxied by two questions in the GHS on how often either an adult or child in the household has experienced hunger in the past 12 months[7]. The questions on hunger from the LCS are worded identically to the questions from the GHSs. The only difference is that there are five response options in the GHSs (1 = Never; 2 = Seldom; 3 = Sometimes; 4 = Often; 5 = Always) and only four in the LCS. The option of 'sometimes' is missing from the response list in the LCS. In measuring income poverty, households are identified as food poor if total household per capita income is below Statistics South Africa's food poverty threshold of R305 (in March 2009 prices). This is the level below which Statistics South Africa estimates that a household cannot meet even the basic minimum food requirements of all of its members (Statistics South Africa, 2012).

Table 1 begins by identifying the scale of subsistence or small-scale agriculture in South Africa as a whole and in the Eastern Cape, in particular. The estimates from the table triangulate data from three recent surveys- namely the Quarterly Labour Force Surveys (2012), the General Household Survey (2012) and the Living Conditions Survey (2008/9). Perhaps the first thing to note from the table is the large difference in the estimates of the number of households which engage in household production or small-scale agriculture.[8] In

[7] This self-reported question on hunger is only intended to be a rough proxy for household food insecurity. The literature suggests that self-reported questions tend to under-estimate food insecurity compared with more objective information on nutrition (Aliber, 2009; Hart, 2009; Jacobs, 2009). To the extent that this is the case, the risk of self-reported hunger should therefore be understood as a 'lower-bound' estimate of household food insecurity (see also Labadarios et al., 2008). Moreover, this measure cannot tell us anything about nutrition or the ability of households to diversify their diets.

[8] It is not immediately clear whether the differences in the estimates from the table are due to the wording of the questions used to measure household production from the respective surveys. For example, the **QLFS** asks, for each individual over the age of 15 (Q5.9a), 'In the last week (Monday to Sunday).... Did you do any work on your own or the household's plot, farm, food garden, cattle post or kraal or help in growing farm produce or in

particular, the estimates derived from the QLFSs are far lower than those from the other two data sources. This is the same concern noted by Meth (2006) and, based on the data from the table, it would seem that the differences are too large to be explained by either a shorter reference period (for the QLFSs) or the focus of the QLFSs on *individual* participation in agricultural activities.

Putting aside these differences for now, the GHS and the LCS provide fairly similar estimates and suggest that between two million and 2.4 million South African households (African only) are engaged in some type of agricultural production. Both data sources also identify this as 21 per cent of all African households. Two different sources therefore suggest that roughly one out every five African households, at least to some extent, engages in agricultural production. As expected, Eastern Cape households, and those in the tribal authority areas (i.e. deep rural and largely consisting of the former homelands) are far more likely to be engaged in agriculture. Between 38 per cent and 42 per cent of African households in the province reported agricultural production in the GHS and the LCS, respectively. Perhaps most significantly, both data sources also identify a clear majority of households in the tribal authority areas of the Eastern Cape as being involved in agriculture (58 per cent and 65 per cent, respectively).

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looking after animals for the household's own consumption? *Examples: ploughing, harvesting, looking after livestock.* [Emphasis in the original]

The **GHS**, on the other hand, asks, for the household as a whole, whether (Q4.5), '…the household has been involved in the production of any kind of food or agricultural products during the past twelve months? (e.g. livestock, crops, poultry, food gardening, forestry, fish, etc.)

The **LCS** asks about household production in several different places. The first question (Q13.1) is for the household as a whole and asks, 'In the 11 months prior to the survey month has this household produced products and/or kept any livestock for own consumption or sale?' This is the source of the estimate which is identified as the 'one-shot' question in Table 1. Much later in the questionnaire, in the section titled 'Subsistence', respondents are asked (Q23.1), 'Does anyone in this household participate in growing food, raising livestock, fishing and/or hunting?' In answering this question, the respondent can choose more specifically between 'growing food', 'raising livestock', 'fishing' or 'hunting'. If the first two of these options are combined, then the estimate of the number of households engaged in own production are somewhat lower than the estimate from the one-shot question (Q13.1). However, if the responses of the two questions are combined (but fishing and hunting are not included) then the estimates are much more closely in line with those form the GHS. This 'expanded' or combined variable is used to derive the estimates of the number and percentage of household engaged in some type of household production in the last column of Table 1. Again, hunting and fishing are excluded even though they are likely to be important sources of food for some households (see Shackleton et al. 2001). The emphasis of the QLFS and GHS definitions is on production (even though fishing is listed as an example in the GHS) so fishing and hunting are not included in the LCS expanded definition in order to derive a comparable estimate to the other two data sources.

So, the differences, across the three data sets, in the estimates of the number of households engaged in household production are difficult to explain. One clear difference is the shorter reference period used by the QLFS (i.e. the last week) compared with the GHSs and the LCS. The QLFS also asks about the activities of each individual in the household while the GHS and the LCS ask about the household as a whole. While there could be a number of explanations for the large differences (e.g. question order and logic), the puzzle (identified by Meth 2006) which remains is why the differences between the QLFSs and the GHS/LCS yield such different estimates of household production.

Table 1 Small-scale agriculture production in the Eastern Cape, 2012

	QLFS 2012				GHS 2012	LCS 2008/9 (one-shot)	LCS 2008/9 (expanded)
	Q1	Q2	Q3	Q4			
	Total households (African only)						
Eastern Cape	292,219 (14,526)	280,789 (14,382)	224,760 (12,839)	224,162 (13,274)	527,807 (16,764)	421,076 (16,510)	560,571 (18,459)
Eastern Cape Tribal authority areas	273,124 (13,959)	259,236 (13,758)	214,008 (12,454)	208,338 (12,672)	460,347 (15,569)	353,455 (13,974)	478,842 (16,305)
South Africa	1,342,360 (30,385)	996,345 (25,379)	982,442 (25,548)	1,186,907 (29,225)	2,443,312 (35,982)	1,421,225 (27,192)	2,001,674 (32,291)
	Percentage of African households						
Eastern Cape	16.63 (0.76)	15.98 (0.75)	12.59 (0.67)	12.54 (0.69)	37.64 (1.00)	31.18 (1.02)	41.51 (1.10)
Eastern Cape Tribal authority areas	31.46 (1.36)	30.15 (1.34)	24.33 (1.24)	23.69 (1.25)	58.18 (1.39)	47.65 (1.38)	64.56 (1.33)
South Africa	9.09 (0.20)	6.68 (0.17)	6.60 (0.17)	7.93 (0.19)	21.04 (0.31)	14.71 (0.27)	20.71 (0.31)

Source: Own calculations from the 2012 GHS, 2012 QLFS (Q2), and the 2008/9 LCS.
Notes: The data are weighted.
Standard errors are in brackets

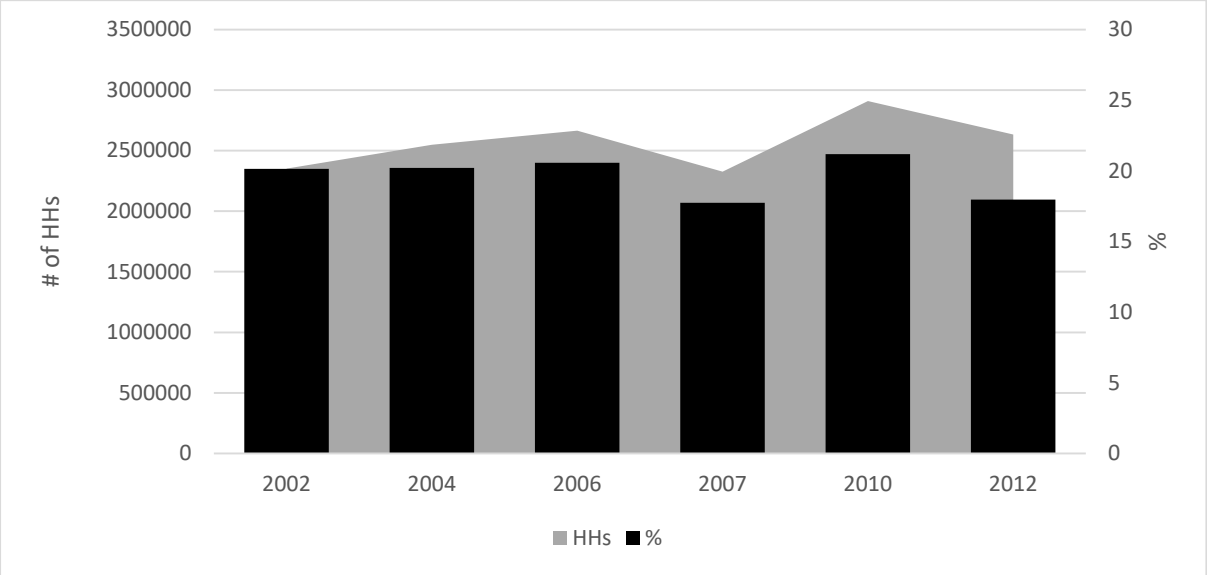
These data, however, are not well suited to identifying whether levels of home agricultural production have changed over time. This is because the GHS questionnaires have not captured this information consistently. Between 2002 and 2009, the GHSs asked about a household's agricultural activities, but only after introducing a filter question about access to land for agricultural purposes. It seems likely that this filter question would exclude a number of home producers (in particular 'backyard' cultivators). This perception is reinforced by the following question about the size of the land which the household uses for agriculture. The smallest response option is 'less than 5000m^2' and this (unlike the later GHSs) gives the impression that the survey is attempting to measure larger-scale agricultural activities[9].

There is, however, the possibility of using the bi-annual LFSs (2000-2007) to measure trends in household production (see Aliber & Hart, 2009) since the questions are worded very similarly to the post-2009 GHS questions on household agricultural activities. One difference, however, is that the LFSs ask about these activities for *each* household member

[9] The data also support this conclusion. The 2008 GHS, for example, identifies roughly half the number of home producing households in South Africa compared with the 2007 LFS (own calculations- the data are weighted). In the Eastern Cape, the same survey underestimates the level of household production by about a third (relative to the 2007 LFS).

while the GHSs only ask whether the 'household' is engaged in agricultural activities. It is not clear in which direction this difference might bias the estimates, but one might expect that the GHS's question would underestimate household production relative to the LFS's. As illustrated in Figure 1, this does not necessarily seem to be the case.

Figure 1 Number and percentage of South African households engaged in some type of agricultural activity, 2002-2012

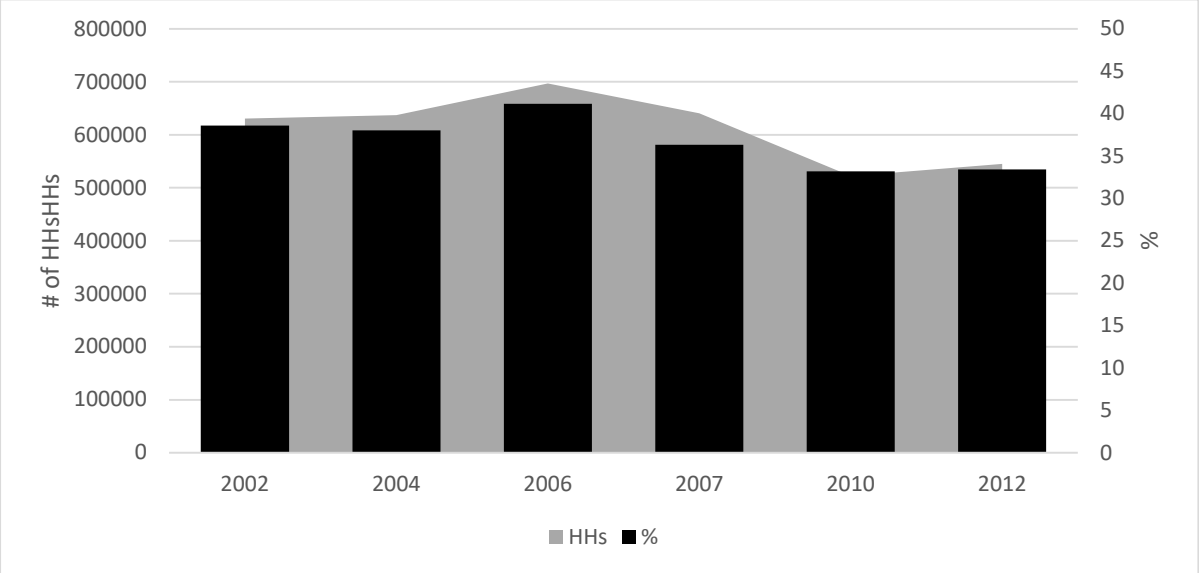


Source: Own calculations from the September LFSs (2002-2007) and the GHSs (2010 and 2012).
Notes: The data are weighted

The 2010 GHS, for example, suggests that 2.9 million South African households (or 21 per cent of all households) engaged in some type of agricultural production. This is an increase from the previous LFS (which estimated 2.3 million households in 2007) but is fairly closely in line with estimates from the 2002-2006 LFSs. Therefore, while there is no clear trend in household production observable over the ten year period covered by the LFSs and the GHSs, there is also no evidence for a decrease in the number of South African households involved in some type of agricultural activity. The same analysis of trends, but in the Eastern Cape (Figure 2), suggests a similar finding for the province. Evidence from the last September LFS (2007) shows that 36 per cent of all households in the province included a household member that was involved in some type of agricultural activity. In 2010 and 2012, 33 per cent of households in the province identified themselves as being involved in some type of agriculture. While this represents a decrease of three percentage points (i.e. between 2007 and 2010), the change falls within the survey margins of error so the conclusion (see also von

Fintel & Pienaar, 2015) is that levels of household production in the Eastern Cape seem to have been consistent over the ten year period[10].

Figure 2 Number and percentage of Eastern Cape households engaged in some type of agricultural activity, 2002-2012



Source: Own calculations from the September LFSs (2002-2007) and the GHSs (2010 and 2012).
Notes: The data are weighted

4. Findings

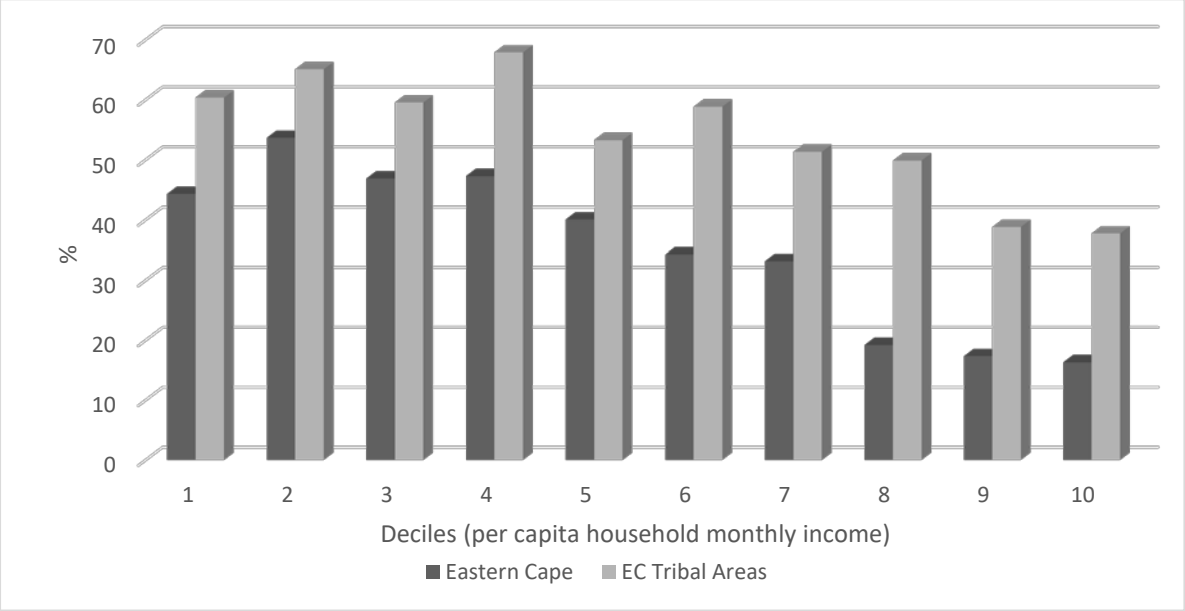
4.1 Household farming activities in the Eastern Cape

In terms of the characteristics of farming households, the data presented in Figure 3 suggest that agricultural production is more likely to be practiced by poorer households. The figure presents the prevalence of agricultural activities across the decile distribution (aggregated nationally) of monthly household income in the province and in the tribal authority areas of the province. In the Eastern Cape, the poorest four quintiles are much more likely to engage in farming activities and households in the second quintile (where 54 per cent of African households farm), in particular, are the most likely to engage in agriculture. Therefore, while households in the bottom half of the income distribution are the most likely to farm, it is not necessarily the very poorest households (decile one) who engage in agriculture (in line with the findings of Palmer and Sender (2006)).

[10] Again, the differences in the LFS and GHS questionnaires also require that we interpret this finding with caution. Moreover, the estimates presented here do not say anything about the scale of agriculture practiced within households. These data, for example, would not be able to detect changes in the number of household members involved in agriculture, the level of productivity, or the scale of the activity. Rather, the estimates presented in the two figures should be understood simply as the number and percentage of households involved in any level or type of agricultural activity.

In the tribal authority areas of the province, the picture is similar in that households in the bottom four income deciles are more likely to engage in some type of farming. The prevalence of household agriculture is, however, far higher in the tribal authority areas. For example, about 68 per cent of African households in the fourth income decile engage, at least to some extent, in agriculture. Across all the deciles, households in the tribal authority areas are more likely to farm. Even among households in the top income decile, those from the tribal authority areas are more than twice as likely to farm than households in the province as a whole.

Figure 3 Percentage of African households engaged in farming activities by income decile (total household per capita income), 2012



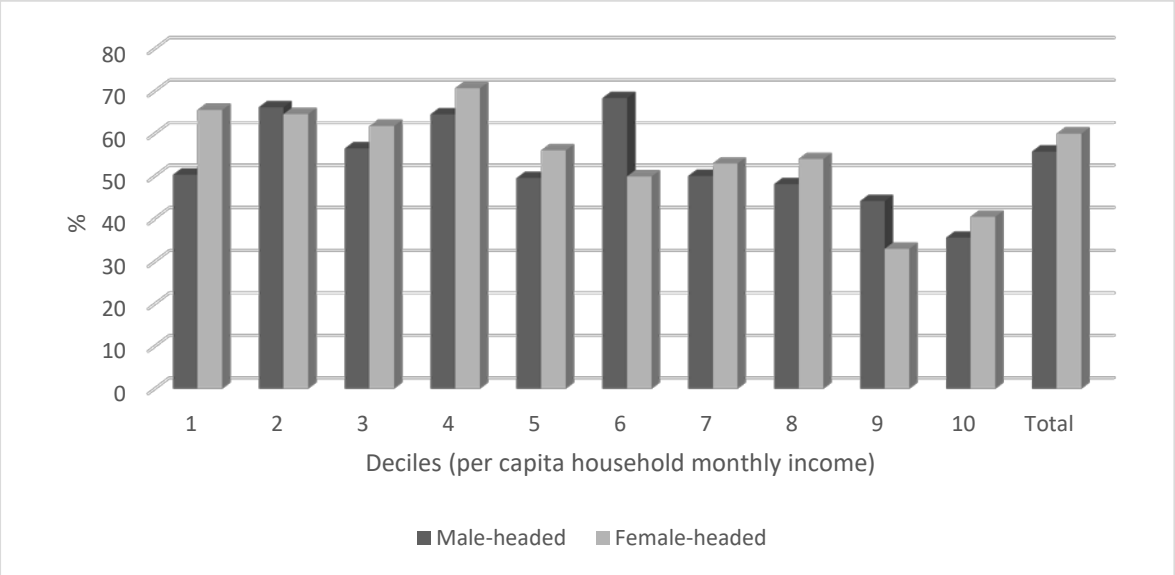
Source: Own calculations from the 2012 GHS.
Notes: The data are weighted

There are also a number of gender differences in the prevalence of farming in the Eastern Cape which seem to contradict some of the findings from earlier studies. While Palmer and Sender (2006:364) have argued that farming is not a viable route out of poverty for the poorest households and for rural women (Sender, 2002), in particular, the evidence from the GHS does not provide strong support for this claim. Figure 4 identifies the prevalence of farming by income decile and the gender of the household head[11]. Across all deciles, 60 per cent of female-headed households in the tribal authority areas of the province are involved in agriculture (compared with 56 per cent of male-headed households). Within the lower income deciles, female-headed households are more likely to farm than male-headed households and

[11] Roughly 57 per cent of households in the tribal areas of the Eastern Cape are female-headed. This is far higher than the rate of female headship in the country as a whole (44 per cent of all households) (Own calculations from the 2012 GHS).

the greatest 'gender'[12] difference in the prevalence of agricultural activity is in the poorest decile where 66 per cent of female-headed households engage in agriculture compared with only 50 per cent of male-headed households. While the differences between female and male headship are small (and the standard errors large), the data from the GHS would suggest that female-headed households in the tribal authority areas of the province are at least as likely, and possibly even more likely, to engage in agricultural activities than male-headed households[13]. This finding casts some doubt on Sender's (2002: 9) conclusion that, '…extremely poor rural households containing relatively large numbers of females are the *least* likely to derive any income from operating their own smallholdings'(own emphasis).

Figure 4 Prevalence of farming among African households in the tribal authority areas of the Eastern Cape by income decile and the gender of the household head, 2012



Source: Own calculations from the 2012 GHS.
Notes: The data are weighted

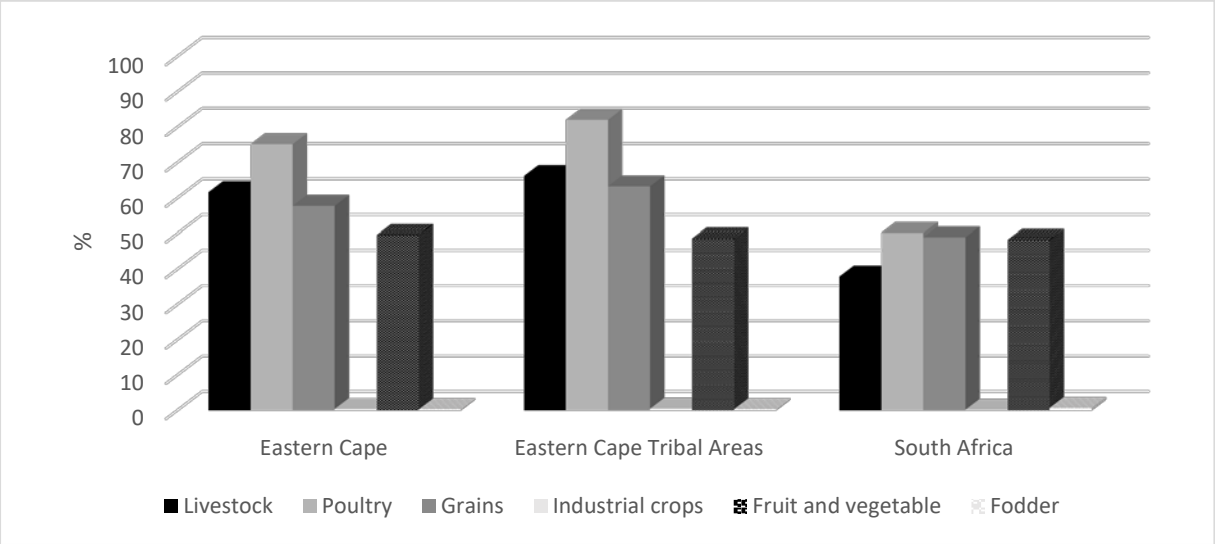
Given the uncertainty surrounding both the level and importance of agriculture to rural livelihoods in South Africa, it is important to consider the types of activities in which households engage, the reasons for household production as well as the scale of the agricultural activities which households undertake. Figure 5 shows that Eastern Cape agricultural households, and particularly those from the tribal authority areas, are more likely than farming households in the rest of the country to keep poultry (82 per cent) or livestock

[12] A similar finding holds at the individual level (i.e. when exploring the differences between women and men). In other words, household production is particularly prevalent among rural women (sample restricted to adults age 17 and older) and especially among those living in households at the lower end of the income distribution (in line with findings reported by Aliber and Hart (2009)).

[13] This, of course, does not suggest that agriculture is a route out of poverty for women or female-headed households. Rather, the data simply show that agriculture is at least as prevalent among female-headed households and is not the exclusive domain of men and male-headed households (as implied by Palmer and Sender (2006)).

(66 per cent) or to grow grains (63 per cent). These three activities are the most commonly reported among agricultural households from the tribal authority areas of the province while just under half also report growing fruit and vegetables.

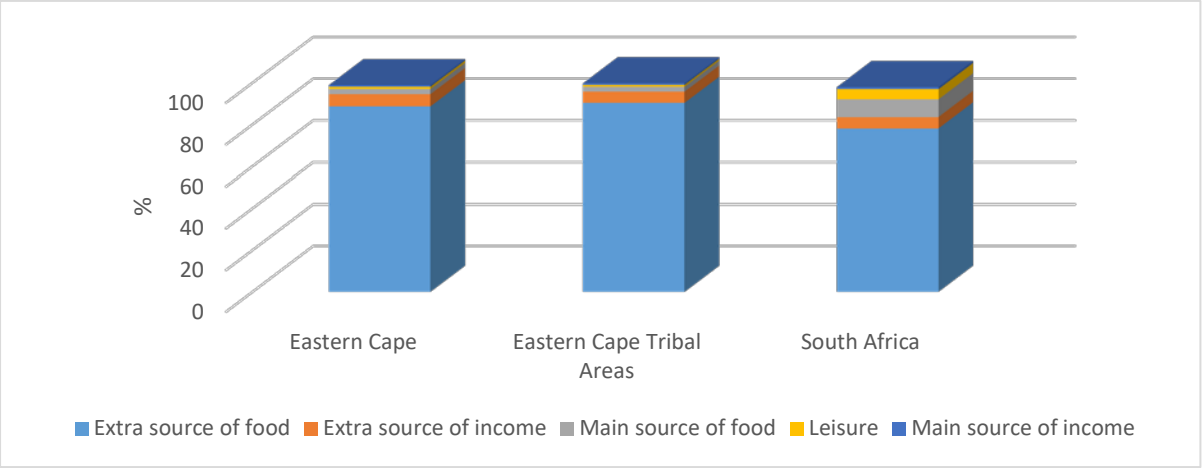
Figure 5 Production characteristics of African farming households in the Eastern Cape, 2012



Source: Own calculations from the 2012 GHS.
Notes: The data are weighted

The main reasons that households engage in these activities, however, are possibly of greater interest in terms of policy (Figure 6). In line with the recent literature, the data suggest that an overwhelming majority of Eastern Cape agricultural households (e.g. 90 per cent in the tribal authority areas) engage in agriculture to *supplement* their food resources. This is somewhat higher (see also Pienaar & von Fintel, 2014) than the national average (78 per cent) and the difference is explained largely by the lower percentage who report agriculture as the *main* source of food in the household. As expected, very few households can be classified as surplus producers that either farm as a principal source of income (less than one per cent) or that sell their produce for extra income (about five per cent). Agricultural households in the Eastern Cape can, therefore, be described as predominantly producers for own consumption that supplement their diets and food sources through animal husbandry and grain harvesting (and, to a lesser extent, through fruit and vegetable cultivation).

Figure 6 Main reason for farming among African households in the Eastern Cape, 2012



Source: Own calculations from the 2012 GHS.
Notes: The data are weighted.

In Table 2, we consider the possible scale of these activities by analysing the size and type of land on which production activities take place. Since the GHS captures information on 'household' agricultural activities, it is not surprising that the vast majority of farming households (in both the province and the country) undertake production on plots smaller than 500 square metres. The vast majority of these plots are characterised as 'backyard gardens' (e.g. 72 per cent in the tribal authority areas of the province) with very few households reporting access to 'farm land'.

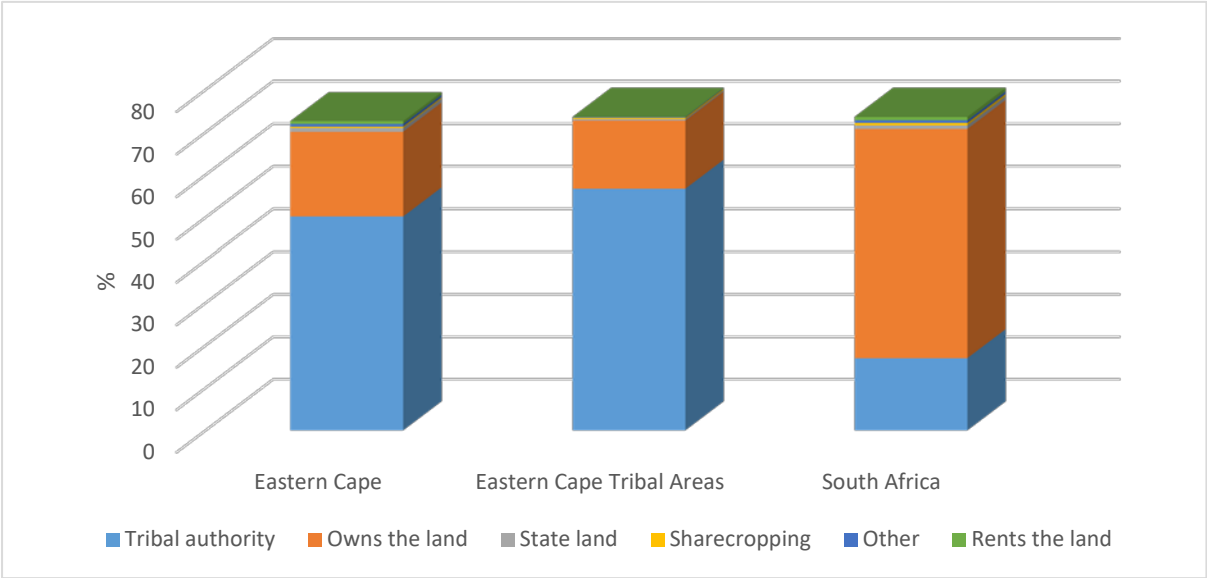
Table 2 Land characteristics of African farming households in the Eastern Cape, 2012

	Eastern Cape	Eastern Cape Tribal authority areas	South Africa
Land size			
Less than 500m^2	63.51 (1.55)	63.34 (1.65)	62.55 (0.73)
500m^2 – 9,999m^2	4.69 (0.65)	5.38 (0.75)	6.66 (0.38)
>1 but < 2 hectares	3.02 (0.56)	3.26 (0.61)	2.37 (0.24)
Land type			
Farm land	2.97 (0.56)	3.14 (0.61)	7.81 (0.41)
Backyard garden	70.86 (1.48)	71.70 (1.57)	67.95 (0.71)
School garden	0.43 (0.20)	0.49 (0.22)	0.48 (0.09)
Communal garden	0.63 (0.25)	0.73 (0.28)	1.17 (0.18)

Source: Own calculations from the 2012 GHS.
Notes: The data are weighted. Standard errors are in brackets. About 27 per cent of households did 'not specify' the size of the land on which they undertake agricultural activities.

Not surprisingly, the largest difference between Eastern Cape agricultural households and those in South Africa, as a whole, is in the nature of access to land (Figure 7). The majority (57 per cent) of households in the tribal authority areas of the province use what is classified as tribal authority land, whereas this constitutes only 17 per cent of land use in the country as a whole. In the South African context, land classified as "tribal authority land" is often organised in terms of arable allotments at varying distances from homesteads, which often include homestead gardens (with the exception of denser clusters of homesteads)tribal authority areas.

Figure 7 Tenure characteristics of African farming households in the Eastern Cape, 2012



Source: Own calculations from the 2012 GHS.
Notes: The data are weighted.

Given the interest in informing the policy response to small-scale agriculture in the Eastern Cape, it is also important to identify the types of government support which agricultural households currently receive (Table 3). While the percentages of households in the Eastern Cape tribal authority areas which receive support in the form of training and extension services are low (6.4 per cent and 9.3 per cent, respectively)[14], these households do seem to receive more support than agricultural households in the country as a whole. This is particularly the case for livestock support such as dipping and vaccinations where 26 per cent of agricultural households in the tribal authority areas of the province receive government support (compared with only about eight per cent of South African households that farm)[15].

[14] This is not altogether surprising given that government support is largely directed towards the commercial sector or 'emerging' farmers in South Africa (see May & Carter, 2009).

[15] Of course this is partially explained by the far higher prevalence of keeping livestock in the Eastern Cape (relative to the country as a whole).

On the whole, then, it would seem that, while government support for agricultural households is not necessarily far-reaching in the Eastern Cape, households in the province report greater levels of support than agricultural households in other parts of the country.[16]

Table 3 Types of support received by African farming households in the Eastern Cape, 2012

	Eastern Cape	Eastern Cape Tribal authority areas	South Africa
Types of assistance			
Training	6.00 (0.75)	6.43 (0.82)	3.27 (0.27)
Extension services	8.77 (0.90)	9.33 (0.99)	4.22 (0.30)
Grants	0.00 (0.00)	0.00 (0.00)	0.03 (0.02)
Loans	0.07 (0.07)	0.00 (0.00)	0.07 (0.03)
Inputs (as part of a loan)	0.65 (0.23)	0.66 (0.25)	0.62 (0.14)
Inputs (for free)[17]	3.91 (0.59)	4.32 (0.66)	7.51 (0.39)
Dipping and vaccinations	22.50 (1.31)	25.83 (1.48)	7.87 (0.41)
Land grant recipient	1.42 (0.37)	1.63 (0.42)	3.05 (0.25)

Source: Own calculations from the 2012 GHS.
Notes: The data are weighted.
Standard errors are in brackets

Given the dominance of household food production as a food supplement (as opposed to an income source or main food source), Table 4 disaggregates the types of activities which households undertake by their reasons for engaging in agriculture. Compared with surplus producers (i.e. households that report production as a source of income), production as a food supplement is largely concentrated in poultry and the cultivation of grains, fruits and vegetables. It is interesting to note that, while these households are less likely to engage in livestock husbandry than surplus producers, a clear majority (65 per cent) still keep livestock. While it is not possible to identify the reasons for keeping livestock (if not for sale) from the GHSs, the literature (Andrew & Fox, 2004; Hart, 2009; Lahiff & Cousins, 2005) would

[16] Of course, as Aliber and Hall (2010) suggest, extension services are largley lacking in the tribal autnority areas.
[17] It is difficult to identify how these different types of assistance would align with the agricultural support packages provided by the Eastern Cape government but it seems that agricultural inputs, in particular, could be linked with the province's support programmes, whether aimed at surplus production or household food consumption.

suggest that livestock is often considered an economic and/or cultural asset, a type of savings, or even a potential safety net in case of economic shocks. Moreover, there is also evidence that livestock (and cattle in particular) ownership is something of an (increasingly) elite activity in the rural Eastern Cape (Andrew & Fox, 2004; du Toit & Neves, 2007).

Table 4 Production characteristics of subsistence and surplus farming households in the Eastern Cape, 2012

	Main source of food	Main source of income	Extra source of income	Extra source of food
Products				
Livestock	51.29 (10.01)	68.04 (19.60)	88.32 (6.90)	65.13 (1.69)
Poultry	89.42 (5.82)	23.25 (15.58)	61.06 (8.88)	83.65 (1.34)
Grains	63.16 (9.50)	47.53 (21.20)	36.49 (8.09)	65.60 (1.71)
Industrial crops	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.57 (0.25)
Fruit and vegetable	51.72 (10.01)	43.72 (20.83)	38.54 (8.54)	49.70 (1.77)
Fodder	3.55 (3.50)	0.00 (0.00)	0.00 (0.00)	0.33 (0.19)

Source: Own calculations from the 2012 GHS.
Notes: The data are weighted. Standard errors are in brackets

The importance of homestead gardens as a site of production is particularly prevalent for home producers that use agriculture to supplement their diets (Table 5). The vast majority of these households (74 per cent) engage in agriculture in these types of plots which seems to confirm that many of these activities are relatively small in scale. Tenure status is also much more likely to be ascribed to a local traditional authority (60 per cent) among these types of producers. At the same time, very few households (15 per cent) that produce as an extra source of food are the legal owners of the land on which they farm or raise livestock (compared with 39 per cent of households that produce for an extra source of income).

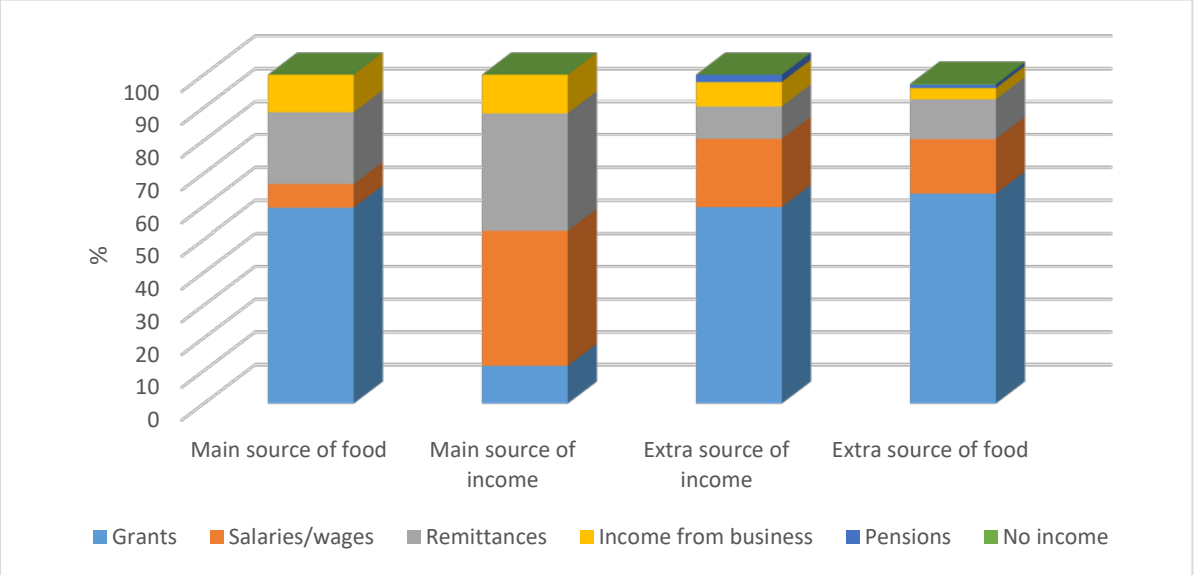
Table 5 Land and tenure characteristics of own consumption and surplus farming households in the Eastern Cape, 2012

	Main source of food	Main source of income	Extra source of income	Extra source of food
Land type				
Farm land	3.55 (3.50)	11.76 (11.44)	10.68 (5.35)	2.65 (0.58)
Homestead garden	78.99 (7.76)	38.57 (19.64)	46.35 (8.61)	73.88 (1.60)
School garden	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.54 (0.25)
Communal garden	3.55 (3.50)	20.46 (17.98)	1.56 (1.56)	0.46 (0.23)
Other	3.48 (3.42)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Tenure status				
Owns the land	14.98 (6.98)	15.31 (14.33)	38.64 (8.50)	14.78 (1.27)
Rents the land	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Sharecropping	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.38 (0.22)
Tribal authority	57.68 (9.88)	43.72 (20.83)	10.37 (4.60)	60.08 (1.75)
State land	0.00 (0.00)	0.00 (0.00)	6.72 (4.75)	0.00 (0.00)
Other	6.33 (6.05)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)

Source: Own calculations from the 2012 GHS.
Notes: The data are weighted.
Standard errors are in brackets

Figure 8 considers the main sources of household income according to the reasons for engaging in household production. Perhaps the key finding is that 64 per cent of households that produce to supplement their diets report that the single largest source of income is social grants. Labour market earnings form a very small part of total household income for these households (only 17 per cent report that salaries or wages are the largest household income source). On the other hand, 36 per cent of households that report farming as a main income source indicate that, somewhat counter-intuitively, that remittances are the main source of household income. Similarly, 41 per cent of these households reported that salaries or wages are the main source of income. While these households make up less than one per cent of African farming households in the province, it is interesting to note that they do not seem to have the expected characteristics of commercial small-scale farmers (i.e. because most of their income comes from either remittances or wages).

Figure 8 Main source of household income among subsistence and surplus farming households in the Eastern Cape, 2012



Source: Own calculations from the 2012 GHS.
Notes: The data are weighted.

In terms of government support for farming activities (Table 6), only a small percentage of own consumption producers receive training or extension services (six per cent and eight per cent, respectively, of households who produce as an extra source of food). Roughly a quarter, however, benefit from dipping and vaccination programmes for their livestock.

These findings would suggest that, on the whole, government support, and particularly extension services, are more likely to benefit (or be targeted towards) households who sell at least some of what they produce, and appear to bypass householders for which food production is the main source of income. Also, the available survey data suggest that, in the Eastern Cape, government support for small-scale farming is not necessarily aimed at own consumption producers (even though they may be the single largest group of recipients since they make up roughly 90 per cent of farming households in the province).

Table 6 Types of government support among subsistence and surplus farming households in the Eastern Cape, 2012

	Main source of food	Main source of income	Extra source of income	Extra source of food
Types of assistance				
Training	0.00 (0.00)	11.50 (11.22)	11.56 (4.98)	6.33 (0.85)
Extension services	7.96 (5.43)	0.00 (0.00)	32.85 (7.58)	8.08 (0.97)
Grants	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Loans	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Inputs (as part of a loan)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.73 (0.28)
Inputs (for free)	4.40 (4.30)	0.00 (0.00)	4.05 (2.90)	4.43 (0.70)
Dipping and vaccinations	15.30 (7.11)	11.76 (11.44)	38.69 (8.36)	25.09 (1.52)

Source: Own calculations from the 2012 GHS.
Notes: The data are weighted.
Standard errors are in brackets

4.2 Small-scale farming, food poverty, and hunger levels

This section now turns to an analysis of food poverty and hunger levels in South African households and in Eastern Cape households within what are classified as tribal authority areas, in particular. Table 7 begins by analysing the risk of hunger[18] and, for greater context, also identifies the percentage of households below the national poverty line[19]. As expected, the table suggests that the risk of poverty is far higher in the Eastern Cape (62 per cent of households) and particularly in the tribal authority areas (78 per cent) compared with South Africa as a whole (48 per cent of South African households are poor). This finding is well established in the literature as the Eastern Cape has consistently been identified as one of the poorest and most materially deprived of the nine provinces (Statistics South Africa, 2012).

[18] Hunger is defined as any adult/child in the household *often* or *always* going hungry because there wasn't enough food at any point in the past 12 months.

[19] The poverty line used in the table is based on Statistics South Africa's official upper bound poverty line of R577 (in 2009 prices). This poverty line is, by far, the most commonly used of the official national poverty lines and the poverty statistics which are cited in the academic and popular literatures are generally based on this threshold.

Table 7 Household well-being in the Eastern Cape, 2008/9 and 2012

	Poverty headcount (GHS-z=577)	% of African HHs w/ adult hunger (GHS)	% of African HHs w/ child hunger (GHS)	% of African HHs w/ adult hunger (LCS)	% of African HHs w/ child hunger (LCS)
Eastern Cape	62.25 (1.65)	2.94 (0.34)	1.34 (0.23)	10.90 (0.64)	7.97 (0.56)
Eastern Cape Tribal authority areas	78.40 (1.43)	2.01 (0.38)	1.21 (0.28)	13.72 (0.95)	10.86 (0.87)
South Africa	48.06 (0.69)	3.21 (0.15)	1.60 (0.10)	7.58 (0.21)	5.00 (0.17)

Source: Own calculations from the 2012 GHS and the 2008/9 LCS.
Notes: The data are weighted

The link between income poverty and hunger, however, is not as clear. While income poverty rates are far higher in the Eastern Cape (and particularly in the tribal authority areas), the risk of either adult or child hunger is actually lower in the tribal authority areas of the province. For example, only two per cent of African households in the tribal authority areas reported a period of adult hunger in the past twelve months compared with 3.2 per cent of African households in the country as a whole. The evidence from the GHS would therefore suggest that rural households in the Eastern Cape are far more likely to be income poor, but are not necessarily more likely to experience hunger.

One concern with the measurement of hunger, however, is that the incidence measured by the GHS is considerably different than the risk of hunger as measured by the LCS[20]. For example, the estimate (from the LCS) for adult hunger in the Eastern Cape tribal authority areas is nearly seven times higher (e.g. two per cent compared with 13.7 per cent) than the estimate from the GHS (and the two surveys were undertaken only about three years apart). More importantly, however, the LCS data actually suggest that the risks of both adult and child hunger are significantly higher in the tribal authority areas of the Eastern Cape (compared with the province and country as a whole). This is the opposite finding from the GHS which showed that African households in the rural parts of the province were relatively food secure despite their higher levels of income poverty[21].

[20] Since hunger is defined (e.g. in the table above) as reporting a household member (split into two questions for adults and children) as either often or always experiencing hunger in the past twelve months, the large differences between the estimates of hunger do not seem to be explained by the different response options in the GHSs and the LCS as described in the methods section (although this certainly remains a possibility).
[21] It is difficult to reconcile this large and somewhat unexpected discrepancy in the measure of hunger. While this requires further investigation, for now, we wish only to highlight it as a possible limitation to the way that subjective measures can be compared across different survey instruments.

Table 8 deepens the analysis by linking food poverty[22] and hunger levels[23] with household production. A first glance at the table would suggest that living in a household below the official food poverty line is not a clear proxy for hunger or food insecurity. The prevalence of food poverty is far higher than the incidence of acute hunger in all geographic areas and in both data sources (i.e. the GHS and the LCS). The interesting findings, however, are in the differences in the risk of food poverty and hunger between farming and non-farming households and between different geographic areas. For example, the risk of food poverty is higher[24] for farming households than for non-farming households across all geographic areas (but the gap is much smaller in the tribal authority areas of the Eastern Cape, where the differential in the risk of poverty between farming and non-farming households is not statistically significant- i.e. according to both the GHS and LCS data).

The main finding, however, is that the risk of hunger is actually lower for farming households in the Eastern Cape (relative to non-farming households). This finding holds across both the GHS and LCS data sets for Eastern Cape tribal authority areas while the LCS data suggest that there are no significant differences in the risk of acute hunger between farming and non-farming households in the province as a whole. Both data sources therefore suggest that the Eastern Cape (and the tribal authority areas in particular) is somewhat unique in that the incidence of hunger is actually lower in farming households, even though the risk of food poverty (i.e. income) is similar or higher than in non-farming households.

[22] Households are identified as food poor if total household per capita income is below Statistics South Africa's food poverty threshold of (R305 in 2009 prices). This is the level below which Statistics South Africa estimates that a household cannot meet even the basic minimum food requirements of all of its members.
[23] Again, households experiencing hunger are those which report either a child or adult 'often or always' suffering from hunger over the past 12 months.
[24] This is not likely to be a causal relationship. In other words, households aren't likely to be poor because they farm- rather households that are poor may choose to farm as a way of coping or diversifying their livelihood activities (see also von Fintel and Pienaar 2014).

Table 8 Food poverty and hunger among African farming households, 2008/9 and 2012

	Poverty Headcount (P_0) (z=305)		Percentage of households experiencing 'hunger'	
	Farming households	**Non-farming households**	**Farming households**	**Non-farming households**
	GHS 2012			
Eastern Cape	44.49 (1.70)	27.96 (1.50)	1.79 (0.42)	3.80 (0.48)
Eastern Cape Tribal Authority Areas	46.37 (1.80)	40.46 (2.61)	1.86 (0.46)	2.66 (0.68)
South Africa	40.67 (0.79)	23.13 (0.55)	3.73 (0.31)	3.22 (0.18)
South African Tribal Authority Areas	44.49 (0.88)	37.33 (1.03)	3.94 (0.34)	3.51 (0.30)
	LCS 2008/9			
Eastern Cape	42.41 (1.91)	25.22 (2.87)	12.49 (1.04)	10.52 (0.84)
Eastern Cape Tribal Authority Areas	44.05 (1.98)	41.27 (3.45)	13.48 (1.17)	15.85 (1.71)
South Africa	37.56 (1.17)	22.90 (0.89)	10.56 (0.51)	7.16 (0.24)
South African Tribal Authority Areas	41.39 (1.24)	38.53 (1.48)	11.11 (0.60)	9.63 (0.47)

Source: Own calculations from the 2012 GHS and the 2008/9 LCS. .
Notes: The data are weighted.
Standard errors are in brackets

Given the sensitivity associated with how hunger is measured (i.e. the large differences between the GHSs and the LCS), Table 9 extends the analysis of household production and hunger by considering 'medium' and 'expanded' levels of hunger[25]. The table suggests that, when the definition of hunger is wider, then farming households are at a marginally higher (but not significantly so) risk of hunger than non-farming households in the Eastern Cape and the Eastern Cape tribal authority areas. At the same time, hunger levels are higher for African farming households in South Africa as a whole (relative to non-farming households). So, in short, the data from both the LCS and the GHS show that farming households in the Eastern

[25] Households suffering medium hunger levels reported that either an adult or child experienced hunger 'sometimes, often or always' over the past 12 months. Expanded hunger levels are those in which a household member reported hunger 'seldom, sometimes, often or always' over the past 12 months.

Cape and the tribal authority areas are not at a significantly higher risk of hunger at any measure of hunger (again, relative to non-farming households)[26]. This finding again points to an anomaly in the Eastern Cape where, despite higher levels of food poverty, households engaged in household production are seemingly able to protect themselves against hunger.

Table 9 Hunger levels among African households, 2008/9 and 2012

	Percentage of households experiencing medium 'hunger' GHS 2012		Percentage of households experiencing expanded 'hunger' GHS 2012		Percentage of households experiencing expanded 'hunger' LCS 2008/9	
	Farming	**Non-farming**	**Farming**	**Non-farming**	**Farming**	**Non-farming**
Eastern Cape	18.40 (1.22)	16.88 (1.02)	24.92 (1.37)	22.38 (1.13)	34.84 (1.55)	30.11 (1.40)
Eastern Cape Tribal Authority Areas	19.52 (1.33)	20.38 (1.87)	26.34 (1.49)	25.89 (2.02)	36.38 (1.65)	35.78 (2.25)
South Africa	14.66 (0.55)	12.42 (0.33)	23.15 (0.65)	18.95 (0.40)	29.80 (0.75)	21.40 (0.39)
South African Tribal Authority Areas	14.67 (0.59)	14.58 (0.61)	23.21 (0.70)	21.80 (0.71)	31.49 (0.87)	24.18 (0.68)

Source: Own calculations from the 2012 GHS and the 2008/9 LCS.
Notes: The data are weighted.
Standard errors are in brackets

Perhaps the best way to identify whether the same households which are food poor are able to avoid hunger is to compare income poverty with hunger directly. While the previous estimates compared aggregate measures of poverty and hunger, Table 10 examines the overlap between income poverty (at the food poverty line) and hunger by identifying the extent to which households which are below the poverty line are able to avoid hunger. For ease of comparison with earlier tables, the table presents three measures of hunger (i.e. acute, medium and expanded hunger). Starting with acute hunger, the key finding is that, in the Eastern Cape, food poor households that farm are at a significantly lower risk than non-farming households (3.3 per cent and 10 per cent, respectively). In other words, among households with the lowest levels of measureable income, households that engage in household production are three times less likely to suffer from acute hunger (in the Eastern Cape as a whole). If the sample is narrowed to the Eastern Cape tribal authority areas, the same finding does not hold. While farming households are still less likely to suffer from acute

[26] Interestingly, Tregurtha (2009) reports the opposite finding- i.e. she reports that Eastern Cape households that have access to land reported a higher incidence of hunger than households without access to land for farming.

hunger, the difference between farming and non-farming households is not statistically significant.

When 'medium' levels of hunger are considered, the differences between farming and non-farming households in the Eastern Cape become more evident. Among food poor households in the province that farm, just over a quarter reported a medium risk of hunger compared with about 37 per cent of non-farming households (and the risks of hunger in the tribal authority areas for both farming and non-farming households are almost identical). At the same time, there is no significant difference in the risk of medium hunger between farming and non-farming households in the rest of South Africa or in the tribal authority areas across South Africa. Finally, the third column of the table suggests a similar finding for the risk of 'expanded' hunger levels. Among food poor households, farming households in the province have a lower (but not significantly so) risk of hunger as defined more broadly.

Table 10 Hunger levels among food poor African households, 2012

	Percentage of households experiencing 'acute' hunger		**Percentage of households experiencing 'medium' hunger**		**Percentage of households experiencing 'expanded' hunger**	
	Farming	**Non-farming**	**Farming**	**Non-farming**	**Farming**	**Non-farming**
Eastern Cape	3.32 (0.87)	10.03 (1.45)	26.05 (2.12)	37.39 (2.54)	35.63 (2.33)	44.58 (2.63)
Eastern Cape Tribal Authority Areas	3.23 (0.90)	4.38 (1.40)	26.35 (2.22)	36.49 (3.56)	36.37 (2.44)	44.71 (3.64)
South Africa	6.57 (0.63)	7.79 (0.56)	21.48 (0.98)	24.16 (0.87)	31.71 (1.09)	33.62 (0.95)
SA Tribal Authority Areas	6.44 (0.65)	6.00 (0.65)	20.42 (1.02)	23.67 (1.23)	30.39 (1.15)	33.94 (1.34)

Source: Own calculations from the 2012 GHS.
Notes: The data are weighted.
Standard errors are in brackets

4.3 Small-scale farming, food poverty, and hunger in a multivariate context

Given the way in which farming households in the Eastern Cape seem to differ in their ability to avoid hunger despite their higher food poverty levels, this final section considers the risk of hunger in a series of simple multivariate estimates. Similar to the analysis by Pienaar and von Fintel (2014), we estimate linear probability models (ordinary least squares) in order to identify whether and how household production may be correlated with household food security. In the first set of specifications, we consider whether households that engage in agricultural activities report lower levels of hunger. The second set then narrows the sample to households which fall below the food poverty line. Finally, the third set of regressions examines the risk of hunger specifically among households that farm, and identifies which factors are correlated with a lower risk of hunger.

Table 11 begins by showing that, as expected, low income is significantly associated with hunger. The positive coefficient in the first column of the table (1) confirms that households which are below Statistics South Africa's food poverty line are also more likely to experience hunger. Moreover, after controlling for income (i.e. food poverty), there is no significant difference in the risk of hunger for households that engage in agricultural activities (2). In other words, farming households are no more or less likely to report experiencing hunger (after controlling for income). Since there are provincial and geographic differences in the risk of hunger and because income sources may be an important correlate of hunger (over and above the actual level of income), the third specification (3) adds in controls for geographic location as well as the main sources of household income.

There are several interesting findings from the full (main effects) specification in column three. The first is that, after controlling for province, area type and the main sources of income, farming households are significantly *less* likely to report hunger. There are several likely explanations for the coefficient on household production becoming significant. First, the reference category for the second group of variables (main source of household income) is income from salaries or wages. As expected, access to wages is an important protector against hunger, and households that rely more on income from businesses (often informal), remittances and social grants are all significantly more likely to experience hunger. Once the regression controls for access to wages, the coefficient on household production therefore becomes significant and negative. This suggests that one of the key disadvantages of farming households, in terms of hunger risks, is their relative lack of wage income (see also Palmer and Sender, 2006).

Table 11 The correlates of household hunger (medium) among African households 2012

	(1)	(2)	(3)	(7)
Food poor	0.142*** (0.007)	0.143*** (0.007)	0.113*** (0.008)	0.112*** (0.008)
Household production		-0.003 (0.006)	-0.0143* (0.007)	0.002 (0.009)
Eastern Cape			0.034*** (0.008)	0.015 (0.011)
Tribal area			-0.024*** (0.007)	-0.032*** (0.007)
Main source of income				
Business			0.036*** (0.012)	0.035*** (0.012)
Remittances			0.043*** (0.012)	0.041*** (0.012)
Pensions			-0.046** (0.018)	-0.047*** (0.018)
Grants			0.094*** (0.008)	0.105*** (0.010)
Farm sales			0.326** (0.158)	0.314** (0.159)
Other			0.006 (0.013)	0.006 (0.013)
No income			0.374*** (0.048)	0.375*** (0.048)
Interactions				
EC*Household production				-0.025 (0.020)
EC*Tribal				0.053*** (0.019)
Household production*grants				-0.034** (0.015)
_cons	0.091*** (0.003)	0.091*** (0.003)	0.074*** (0.004)	0.074*** (0.004)
F stat	378.04	190.57	54.55	43.05
Prob > F	0.00	0.00	0.00	0.00
R^2	0.035	0.035	0.058	0.059
N (unweighted)	**19 920**	**19 920**	**19 920**	**19 920**

Source: Own calculations from the 2012 GHS

Notes: The data are weighted. Standard errors in parentheses. *** Significant at the 99.9 per cent confidence level. ** Significant at the 95 per cent confidence level. * Significant at the 90 per cent confidence level. The omitted category is 'salary/wages' as the main source of household income.

One of the other interesting findings from the third specification in Table 11 is that, after controlling for the other variables, households that report the sale of farm products as their main source of income are significantly *more* likely to report hunger. This is the opposite finding from Pienaar and von Fintel (2014) who show a significant protective effect from the sale of farm products. The difference could be explained by the fact that our specification is different in that we control also for income, province and whether the household engages in production. Therefore, the most likely explanation for our finding is that the reference category is wage income (and farming carries more risk than working for a regular wage) and, after controlling for other factors (i.e. income), the risk of hunger is greater for households that rely on farm income[27]. Therefore we suggest that engaging in surplus household production[28] as a main source of household income is not a strong protector against hunger, holding all else constant.

The interactions suggest two further possible correlates of hunger. For example, over and above the variables included in the main effects specifications, households in the tribal authority areas of the Eastern Cape face a particular risk of hunger (but only after controlling for household production). However, households that engage in household production and report that social grants are the main source of income face a significantly lower risk of hunger. This interaction is particularly interesting since it suggests that combining household production with a regular (albeit small) source of income may be independently correlated with a lower level of hunger (over and above the main effects specifications). While the estimation strategy that we employ here cannot shed further light on this claim, it is interesting that the findings reported by von Fintel and Pienaar (2015) identify household production as a mechanism through which social grants improve food security.

Given the obvious importance of income in protecting against hunger, Table 12 extends the analysis by looking specifically at the poorest households (i.e. those below the food poverty line). The first two columns of the table (1 and 2) include all African households below the food poverty line while the next two columns (3 and 4) consider only Eastern Cape African households (below the poverty line). The main effects specification for the entire sample (1) suggests that, after controlling for a number of factors, food poor households that engage in household production are significantly less likely to report hunger. As highlighted in the previous table, households that rely on wages more than any other income source have a significantly lower risk of hunger. Once again, households that report that the sale of farm

[27] We also use a wider definition of hunger than Pienaar and von Fintel (2014) in that we combine adult and child hunger into a single binary outcome variable and we identify households that 'sometimes' experience hunger as being food insecure.

[28] Recall, however, that only one per cent of all African households that engage in agriculture in South Africa report that they farm as the main source of income in their household and only 5.5 per cent supplement their household incomes with farm earnings.

products are the primary source of household income are significantly more likely to report hunger (relative to households that report wage income). Therefore, while household production seems to offer some protection against hunger among the poorest households in the country, relying on farming as a primary income source does not. While the first regression also suggests that Eastern Cape households face a higher risk of hunger (relative to households from the rest of the country), the interaction term between the Eastern Cape and household production (2) has a significant negative coefficient. This might suggest that household production has an additional protective effect against hunger for poor households in the Eastern Cape.

In order to explore this particular finding further the next two specifications (3 and 4) estimate the same correlates on a restricted sample (food poor African households from the Eastern Cape). Among poor households in the province, those that engage in household production are significantly less likely (3) to report hunger (relative to non-producing households). This association holds when the regression also controls for the main source of household income (4). This is a key finding since it shows that, irrespective of the main source of income for food poor households in the Eastern Cape, household production is significantly associated with lower levels of hunger.

Table 12 The correlates of hunger among food poor African households

	South Africa		Eastern Cape	
	(1)	**(2)**	**(3)**	**(4)**
Household production	-0.0281* (0.0146)	-0.00733 (0.0156)	-0.113*** (0.0332)	-0.118*** (0.0375)
Eastern Cape	0.107*** (0.0182)	0.129*** (0.0343)		
Tribal area	-0.0401*** (0.0149)	-0.0473*** (0.0157)		0.00344 (0.0424)
Main source of income				
Business	0.123*** (0.0388)	0.121*** (0.0388)		-0.0411 (0.0915)
Remittances	0.0411** (0.0199)	0.0380* (0.0199)		-0.0938 (0.0609)
Pensions	-0.0544 (0.0438)	-0.0521 (0.0439)		-0.0966 (0.143)
Grants	0.114*** (0.0176)	0.113*** (0.0176)		0.00908 (0.0562)
Farm sales	0.497** (0.228)	0.483** (0.229)		. .
Other	0.0162 (0.0244)	0.0154 (0.0243)		-0.109 (0.0798)
No income	0.389*** (0.0553)	0.388*** (0.0553)		0.404*** (0.121)
Interactions				
EC*Household production		-0.109*** (0.0406)		
EC*Tribal		0.0398 (0.0446)		
_cons	0.174*** (0.0142)	0.173*** (0.0145)	0.374*** (0.0255)	0.394*** (0.0535)
F stat	15.64	13.27	11.70	4.72
Prob > F	0.00	0.00	0.01	0.00
R^2	0.042	0.044	0.015	0.041
N (unweighted)	**5727**	**5727**	**882**	**882**

Source: Own calculations from the 2012 GHS

Notes: The data are weighted. Standard errors in parentheses. *** Significant at the 99.9 per cent confidence level. ** Significant at the 95 per cent confidence level. * Significant at the 90 per cent confidence level. The omitted category is 'salary/wages' as the main source of household income.

Finally, given the evidence that household production may offer some protection against hunger for the poorest households in South Africa (and particularly those in the Eastern Cape), Table 13 estimates the correlates of hunger among households that engage in agriculture. Once again, each regression controls for income by including a dummy variable which denotes whether the household lives below the national food poverty line. In each of the specifications (1-4), the size and level of significance of the coefficient on the food poverty variable remain almost unchanged. Food poverty is, as expected, positively and significantly associated with a higher risk of hunger.

In the second column (2), controls are added for various types of agricultural support which households may have received, types of farming activities, land size, as well as geo-spatial variables. In terms of the types of agricultural support received by farming households, the regression suggests that households that have received a loan are significantly less likely to report hunger. However, households which report having received free agricultural inputs are significantly more likely to suffer from hunger. While it is tempting to make causal inferences about the 'effect' of these support interventions, we note (as do Pienaar & von Fintel, 2014) that it is more likely the case that households which are not food insecure are more likely to be able to obtain loans and that, on the other side, free inputs are well-targeted to the most vulnerable households (i.e. those that suffer from hunger)[29]. Perhaps the more interesting finding from this specification is that, while controlling for the size of the plot on which agricultural activities take place, households that farm for own consumption (either as a main or supplementary food source) are significantly *more* likely to report hunger than surplus households which sell at least some of their produce.

The third regression (3) explores this finding further by introducing controls for the main source of income in farming households[30]. Even after controlling for the primary source of income, the positive (and significant) association between producing for own consumption (i.e. relative to farming for an income source) and the risk of experiencing hunger remains unchanged. However, and as with the previous estimations, the risk of hunger is significantly greater when farm sales are the single largest source of household income. The interpretation of these particular findings (i.e. a greater level of hunger for own consumption farmers, but also a higher risk of hunger when farm sales are the main source of household income) requires some degree of caution. Nonetheless, several conclusions can be made about these findings.

[29] A separate specification (not shown in the table) estimated a series of interaction terms between farming for own consumption (a dummy variable) and dummy variables denoting each of the types of agricultural support. None of these interactions terms were statistically significant.

[30] The full range of response options were included in the specification (i.e. as presented in Table 12 and Table 13) but only the coefficients for grant income and farm sales are presented in the table. As before, the reference category is salaries/wages.

The first is, once again, the critical importance of wage income (again the omitted reference category)-even to households that engage in agriculture. Second, a likely interpretation of the seemingly contradictory results from the third specification is that relative to surplus farmers, households that engage in agriculture purely for own consumption may do so *because* they are vulnerable to food shortages. At the same time, households that report that their agricultural income is their main income source are more likely to be food insecure than households who farm for own consumption or income, but *also* have access to a substantial source of wage income. These findings are therefore indicative, once again, of the primacy of labour market income as a protector against hunger.

Finally, the fourth column in the regression (4) includes two interaction terms which are statistically significant. The two interactions suggest that farming households in the Eastern Cape that receive government extension support are less likely to report hunger. It is therefore possible that extension services are targeted to more affluent farming households in the Eastern Cape *or* that these services are particularly effective in the province (compared with farming households in the rest of the country). Either explanation is plausible, but the research design employed here is not able to shed further light on which interpretation is more likely. Similarly, farming households in the Eastern Cape which have received an agricultural loan are more likely to report hunger. In this particular case it is not clear whether it is the higher risk of hunger in the Eastern Cape which is driving the result or whether loans in this province are, in fact, given to more vulnerable households. Perhaps the only two conclusions which can be made based on this last regression are that there are provincial differences in the risk of hunger among farming households and that the types of government support which are given to agricultural households are also associated with food security (although the directions and causal mechanisms require much more investigation).

Table 13 The correlates of hunger among farming households only

	(1)	(2)	(3)	(4)
Food poor	0.115*** (0.012)	0.115*** (0.012)	0.116*** (0.012)	0.115*** (0.012)
Types of agricultural support				
Training		-0.001 (0.042)	-0.012 (0.042)	-0.012 (0.0417)
Extension services		0.044 (0.038)	0.053 (0.037)	0.124** (0.050)
Loan		-0.211** (0.092)	-0.247*** (0.094)	-0.375*** (0.127)
Free inputs		0.133*** (0.027)	0.126*** (0.027)	0.118*** (0.027)
Dipping		-0.007 (0.022)	-0.006 (0.022)	0.008 (0.033)
Producer characteristics				
Own consumption		0.045*** (0.015)	0.044*** (0.015)	0.044*** (0.015)
Plot < 500 m^2		-0.030** (0.012)	-0.026** (0.011)	-0.026** (0.011)
Geo type				
Eastern Cape		0.049*** (0.014)	0.043*** (0.014)	0.053*** (0.015)
Tribal area		-0.036** (0.015)	-0.043*** (0.014)	-0.044*** (0.014)
Main source of income				
Grants			0.047*** (0.013)	0.048*** (0.013)
Farm sales			0.326* (0.168)	0.318* (0.172)
Interactions				
EC*extension				-0.152** (0.061)
EC*loan				0.233* (0.128)
_cons	0.010*** (0.006)	0.085*** (0.016)	0.068*** (0.017)	0.067*** (0.017)
F stat	99.00	14.08	14.47	37.94
Prob > F	0.00	0.00	0.00	0.00
R^2	0.025	0.046	0.068	0.068
N (unweighted)	**5 359**	**5 359**	**5 359**	**5 359**

Source: Own calculations from the 2012 GHS

Notes: The data are weighted. Standard errors in parentheses. *** Significant at the 99.9 per cent confidence level. ** Significant at the 95 per cent confidence level. * Significant at the 90 per cent confidence level. The omitted categories are: farming as an income source (either main income source or as a supplement);access to plots larger than 500m^2; non-tribal authority areas; and 'salary/wages' as the main source of household income.

5. Discussion

This study was motivated by recent policy proposals (see Sender, 2014) concerning a radical reduction in support for small-scale farmers in the Eastern Cape. While there is consensus on the high levels of rural poverty in South Africa as well as a shared pessimism about existing agricultural support packages (and particularly extension services), there is agreement on little else in the literature. It is against this backdrop that this paper sought to contribute to a clearer understanding of the current role of household production in improving food security in the Eastern Cape. As such, the two-fold objective of the paper was, first, to identify the extent to which rural African households in the Eastern Cape include household production in their livelihood activities and to also identify the types and characteristics of agricultural activities which are prevalent. Second, the paper aimed to explore whether and how household production activities are associated with household food security.

Given the specific objective of contributing to policy debates in the province, an additional goal of the paper was to identify whether a strategy of supporting own consumption production (without accumulation) or the diversification and commercialisation of small producers (accumulation from below and accumulation of the few, respectively) are the most appropriate policies. Towards this end, a particular focus of the analysis was to distinguish between surplus and own consumption producers in terms of the risks of hunger.

5.1 Household production in the Eastern Cape

With respect to the first objective, the paper outlined the level of household production in the Eastern Cape and highlighted trends over a recent 10-year period. The key finding from this analysis is that, contrary to some claims in the literature, there does not appear to have been a decline in the number of households involved in household production. Moreover, the analysis showed that the majority (between 58 per cent and 64 per cent- depending on the source of data) of African households in the tribal authority areas of the province report at least some type of household production activity. While it is not possible to identify whether the level or scale of agricultural activities is changing in these households, the statistics presented in the first section of the analysis highlight that small-scale agriculture is important to households in the tribal authority areas of the province in the sense that a clear majority of households engage in these activities.

The descriptive statistics also identified some of the characteristics of household production activities and, in particular, showed that farming is largely a source of additional food for households. In fact, one of the key findings from the descriptive statistics was that, relative to the rest of South Africa, household production as an additional food source (i.e. not a main source and not as an income generator) is a key feature of household agriculture in the

province. Roughly 90 per cent of farming households in the tribal authority areas of the province report that the main reason that they engage in agriculture is to supplement their diets while only six per cent produce mainly for income (and almost all of these households identify household production as an *additional* income source). While it is possible that the level of surplus agriculture is underestimated in the GHSs[31], it is still the case that household production in the rural parts of the province should be characterised as subsistence or 'own consumption' since, for the most part, it does not exhibit the characteristics which are associated with commercial agriculture. In short, household production among African households in the Eastern Cape is largely for own consumption, takes place on small homestead gardens and is undertaken by very poor (if not necessarily the poorest) households that often rely predominantly on social grants for income. This description of the main activities of Eastern Cape agricultural households is particularly important given the policy environment in the province and we will return to the characteristics of these households in the discussion on policy implications.

5.2 Household production and hunger

In relation to the second objective of the study, the paper has explored the importance of household production to rural households in the Eastern Cape by adopting a food poverty lens. In particular, our results have suggested that, while households in the province are significantly poorer than households in South Africa as a whole, they do not necessarily report higher levels of hunger. In fact, the risk of adult hunger is significantly *lower* in the tribal authority areas of the province (relative to South Africa) even though poverty rates are far higher. This is the same finding which has been questioned in the income poverty literature in South Africa (Meth, 2006; Posel & Rogan, 2014) and which formed one of the motivations for the comparison of poverty and hunger and the their links with household production.

In order to narrow the analysis and to explore whether the gap between income poverty and hunger risks is explained, at least in part, by household production, the final section of the paper compared farming and non-farming households. Perhaps the main conclusion from the comparison between households that farm and those that do not is that the risk of hunger is actually lower among farming households in the Eastern Cape even though a higher percentage of these households (relative to non-farming households) live below the national food poverty line. There is also some persuasive evidence that Eastern Cape farming households are somewhat unique in their ability to avoid hunger. In other words, farming households in South Africa as a whole are more likely to report hunger than non-farming

[31] This is a possibility because the survey question only asks for the 'main' reason for engaging in agricultural activities. Therefore it is possible that some households indicate that the main motivation is to supplement their diet but they may also sell or barter their surplus production on occasion.

households. Moreover, even if the analysis is restricted to the tribal authority areas of South Africa, there is no evidence that farming households are able to protect themselves from hunger to a greater extent that non-farming households. This difference makes farming households in the Eastern Cape somewhat unique.

This link between household production and food security among poor households in the Eastern Cape was explored in greater detail through a series of linear probability models. The estimations identified a number of ways through which household production may shield households against the risk of hunger and provide some insight for policy design (as discussed in the final section below). First and foremost, the regressions showed that, while one of the key disadvantages of farming households, in terms of hunger risks, is the lack of wage income, there is clear evidence that household production is correlated with lower levels of hunger. This finding suggests that, while Sender's (e.g. 2014) argument regarding the importance of wages is undeniable, rural Eastern Cape households, in the absence of wage income, seem to protect themselves from hunger through household production. When the analysis is narrowed specifically to the poorest households in South Africa, the role of household production in protecting food security becomes even clearer and the evidence from the regressions suggests that this is particularly the case for Eastern Cape households that engage in household production.

While these findings have shown that households that produce for their own consumption (i.e. the vast majority of farming households) are less likely to experience hunger, there is also some mixed evidence with regard to whether surplus farming also protects against hunger. Farming households that report that their main source of income is from farm sales seem to report higher levels of hunger (relative to households that rely on wage income), but surplus producing households tend to report lower hunger levels than own consumption producers. As identified in the previous section, these results require careful interpretation, but it seems likely that the primacy of wage income explains the higher risk of farming for a main income source, but that households which are able to sell at least some of their surplus are also likely to report lower levels of hunger. While it is tempting to draw inferences from these particular findings, the strongest claim that can be made, based on the data from the GHSs, is that household production is a livelihood source for the majority of rural households in the Eastern Cape and there is clear evidence that, in the absence of wage income, household production is correlated with lower levels of hunger.

5.3 Implications for policy

Given the emphasis of this paper on rural development and agricultural policies in the Eastern Cape, it is important to reflect on what the findings mean for the existing approaches to small-scale agriculture and household production in the province. The main intervention

introduced by the Eastern Cape Department of Agriculture is a two part programme to support small-scale agriculture in the province (for a detailed review, see Tregurtha, 2009). Initially introduced in response to the regional drought in 2001, the Siyazondla Programme has a specific focus on promoting household production to improve household food security (i.e. without accumulation) and is, therefore, not focussed on commercial agriculture or 'emerging farmers' as such. Nonetheless, the actual support mechanisms do include access to agricultural inputs, irrigation and several types of training (see Tregurtha, 2009).

On the other end of the policy scale, the province's Siyakhula/Massive Food Programme is aimed at households or groups that engage in (or have the potential to engage in) surplus production. This part of the policy package therefore has a clear element of 'accumulation' or commercialisation and the main component is a conditional grant which is intended to help cover the costs of agricultural inputs and mechanisation (Tregurtha, 2009). The objectives of the province's Siyakhula/Massive programme go well beyond the improvement of food security at the household level. At the core of the programme's intent is a contribution to regional food security (i.e. through increased maize outputs), developing a cohort of successful black emerging farmers, creating new agricultural markets in the province, and the deepening of linkages with the private sector (Tregurtha, 2009).

While there is no evidence that a formal evaluation of either of these programmes has been conducted, Fay (2013) gives a largely favourable account of the Siyazondla Programme and, in particular, links it with nutrition, food security and the diversification of livelihoods. Similarly, Tregurtha (2009) undertakes a detailed analysis of the Siyakhula/Massive Food Programme and reports on the results of a basic cost-benefit study. In this assessment, she concludes that, while the programme is not technically cost-effective and has not met its stated objectives, there are some positives in terms of both the increase in outputs (largely maize) and in achieving some level of transformation (i.e. supporting emerging black farmers).

Within this policy context, what do the results presented in this paper mean in terms of the best approach to supporting small-scale farmers and home producers? While keeping in mind the risk of over-romanticising home and community gardens, the data from the GHSs (in support of the analysis by Fay (2013)) would suggest that continued support for household production without prospects for accumulation is a relatively safe course of action, and serves to reduce the risks of hunger in a context of high joblessness and limited success in creating employment. The vast majority of households in the province (and particularly poor households in the tribal authority areas) engage in production to supplement their diets and there are demonstrable links (irrespective of the direction of causality) between these activities and lower levels of hunger.

With respect to the more ambitious policy of promoting commercial agriculture among emerging farmers, there is more uncertainty. On the one hand, very few households in the province that engage in production activities report that their main reason for farming is for any type of income. Moreover, the analysis also showed that, when households depend on farms sales as their main source of income, the risk of hunger is significantly higher. This conclusion is supported by a large literature which demonstrates the inherent difficulties and risks faced by small farmers and particularly those which do not have access to the necessary infrastructure (e.g. transport and storage facilities). For example, even a generally favourable assessment (Tregurtha, 2009) of the Siyakhula/Massive Food Programme found that poor market penetration (and a general lack of agricultural output markets) and structural problems with the supply of inputs and machinery were largely responsible for the programme not meeting its objectives.

On the other hand, the analysis from the GHS also suggests that, among farming households specifically, those that report selling surplus produce are *less* likely to experience hunger compared with households that produce mainly for their own consumption (holding other factors constant). There are, of course, some questions about the direction of causality with this finding, but there is enough evidence to suggest that both surplus and own consumption production activities have at least some link with household food security in South Africa, more broadly, and in the rural Eastern Cape specifically. More detailed (and robust) analysis than is possible when using the GHSs (or other large scale cross-sectional surveys) is still required, but the fact that the results presented in this paper are closely in line with some of the findings from other recent analyses (Fay, 2013; Pienaar & von Fintel, 2014) suggests that we should take seriously the role of household production in supporting household food security among poor rural households in South Africa. The possibilities for promoting production for accumulation and supporting emerging black farmers remains an open question, however, and we would suggest that robust impact evaluations of specific interventions (including those such as the Siyazondla and Siyakhula/Massive programmes) is a logical step in contributing specifically to the debates around small-scale commercial agriculture in South Africa.

5.4 Concluding remarks

Household production is significantly associated with food security among resource constrained and food poor households. From a policy perspective, this requires that we think carefully before removing support to small producers and relying on the labour market and/or social grants to protect households from hunger. While there is still a significant amount of work to be done in order to identify the specific types of production and cultivation which require support and how interventions might best support home producers, the importance of these activities should not be underestimated. This conclusion in no way suggests that wage income is not important. In fact, (the revival of) rural wages are likely to be crucial to the longer term development solutions in the rural parts of South Africa. However, food security is an immediate concern and the analysis of the GHS has shown that households are able to meet at least some of their basic needs by engaging in various types of household production even if the prospects for accumulation might be limited.

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