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Perceived patterns and drivers of deagrarianization: a case study of Ambros and Maramanzhi villages, South Africa

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Access to arable land has the potential to address the challenges of poverty, unemployment and household food insecurity in South Africa. Despite these opportunities and limited income sources, particularly in former homelands of the country, smallholder farmers have progressively disengaged from field cultivation. The aim of this study is to examine cultivation trends to understand the patterns and drivers of deagrarianization in Ambros village, Eastern Cape province and Maramanzhi village, Limpopo province, South Africa. A purposive sampling approach was used to select four key informants and four transect walk participants. Meanwhile, simple random sampling was conducted to select 106 household heads. Semi-structured questionnaires consisting of open-ended and close-ended questions were used to collect data for this study. Descriptive statistics were analyzed using IBM SPSS Statistics 27.0, while qualitative data were analyzed with NVivo 12 software. The key findings revealed that 48% of household heads in Ambros and 55% in Maramanzhi villages owned fields. However, a multifaceted process involving livelihood reorientation and spatial realignment away from rural agrarian patterns, identified as deagrarianization disproportionately affects the study sites. This process has been reflected by a decline in field cultivation. Most evidently, Ambros had more fallow fields, compared to Maramanzhi. These deagrarianization processes largely stem from a complex combination of political, socio-economic and ecological drivers, such as colonial and apartheid land dispossession, lack of agricultural inputs and droughts. Among the various socio-economic effects, deagrarianization is a challenge that destabilizes social structures and farming attitudes in rural areas of South Africa. Based on the study findings, we recommend that the government improves the development of infrastructure and agricultural training programs to enhance the revitalization of fallow fields and employment opportunities for rural inhabitants.

KEYWORDS

cultivation, deagrarianization, decline, fallow, fields

1 Introduction

Farming in sub-Saharan Africa is continuously affected by complex changes, causing rural people to diversify their livelihood activities in pursuit of increasing and sustaining income (Masunungure and Shackleton, 2018). As rural livelihoods increasingly diversify toward non-farm activities, farming becomes relegated to a secondary activity, especially in some countries of the global south (Formoso, 2016; Pritchard et al., 2017; Rigg et al., 2018;

Dobler-morales et al., 2022). This reorientation of livelihoods forms part of a process described as deagrarianization. The term deagrarianization is defined as a process of (i) economic activity reorientation (livelihood), (ii) occupational adjustment (work activity) and (iii) spatial realignment of human settlement (residence) away from agrarian patterns (Bryceson, 1996). It is regarded as a process of shifting a social unit or community from an agrarian mode of existence toward a non-agrarian mode (Schramski and Barnes, 2016). Context-specific studies argue that deagrarianization does not imply that smallholder farming households have ceased farming. Instead, the process indicates a reorientation of rural livelihoods, whereby, a decreasing percentage of the total population is involved in agriculture and a decreasing percentage of national and household incomes are derived from agriculture (de la Hey and Beinart, 2017). Definitions of deagrarianization might be similar, but the manifestation (drivers) and socio-economic patterns of this phenomenon vary throughout different locations (Blair et al., 2018; Hebinck et al., 2018; Delgado-Viñas, 2023). Deagrarianization intensifies if the diversification of rural livelihoods incorporates a growing portfolio of non-farm activities (Belton and Filipowski, 2019). Since deagrarianization is spatially heterogeneous, the process has various indicators and can be measured differently. However, the common indicators include reduced agricultural employment, declining agricultural land area (through land abandonment or altering), decreasing number of farms and a decreasing role of agriculture in local and national economies (Hebinck, 2018; Bilewicz and Bukraba-Rylska, 2021). An array of rural development interventions aimed at addressing rural poverty and vulnerability have not delivered integrated or sustainable agricultural production strategies for rural households, mainly because of a misunderstanding of local settings and livelihoods (Jacobson, 2013; Mtero, 2014). Thus, examining the South African context will assist with implementing targeted policy interventions that address the decline in field cultivation. Moreover, a dearth of empirical studies analyse the patterns of deagrarianization processes in communal areas of South Africa (Mkhongi and Musakwa, 2022). To bridge this knowledge gap, this study aims to analyse cultivation trends to understand the patterns and drivers of deagrarianization in Ambros and Maramanzhi villages, South Africa. To accomplish this aim, the paper addresses the following research question: (1) How is deagrarianization reflected in the study area? (2) What are the drivers of deagrarianization in the study area? This paper is structured as follows: introduction (section 1) deagrarianization in South Africa (section 2), the material and methods (section 3), findings (section 4), discussion (section 5) and finally, the conclusion of the study (section 6).

2 Deagrarianization in South Africa

As a distributive resource, land is a crucial medium of production that supports various rural livelihood activities, including agriculture (Chitonge, 2013; Ferguson, 2013; Mokgomo et al., 2022). Smallholder agriculture throughout Africa, including South Africa, is usually conducted by households that mainly use family labor and have access to arable land of less than two hectares (Scoones and Thompson, 2011; Cousins, 2013). A smallholder refers to a farmer who primarily works and manages their land holdings as a family or household, mainly using the produce for home subsistence (Djurfeldt et al., 2005). Most

notably, smallholder agriculture not only enhances food security, poverty reduction and rural development but also contributes to cultural values and social identities (Dercon and Gollin, 2014; de la Hey and Beinart, 2017; Pritchard et al., 2017; Hebinck et al., 2018; Rogan, 2018).

In the global context, smallholder farmers can persist despite global capitalist pressures that negatively affect farming (Bryceson, 2000). It is argued that smallholder farmers will continue with agriculture, particularly in developing countries, despite the expansion of global capitalism (Rigg et al., 2016). Global evidence suggests that deagrarianization is a complex and dynamic response to institutional and economic transformations affecting smallholder farming. Thus, smallholder farmers respond differently to its processes (Hebinck, 2018). Previous studies have described the resilient nature of smallholders and contend that peasant farms can persist under capitalism (Chayanov, 1966). Most notably, deagrarianization normally occurs as a form of semi-proletarianization, implying that subsistence agriculture has not been entirely abandoned. This is because waged labor activities are very seasonal and precarious, offering insufficient subsistence (Akram-Lodhi and Kay, 2012).

The deagrarianization processes witnessed in South Africa are similar to what has been reported globally. In the South African context, smallholder farming households continued with farming despite being undermined by colonial and apartheid policies (Fischer et al., 2024). For instance, the Native Land Act of 1913 enforced racial segregation of land ownership, including agricultural land. As a result, Black South Africans were confined to homelands, which were overpopulated rural establishments with limited agricultural potential, forcing people to work as laborers (Ramutsindela, 2013). Thus, deagrarianization in South Africa is identified with the historic process of proletarianization because peasant farmers were removed from their land to become labor migrants in capitalist mines (Wolpe, 1972). Consequently, one of the strategic imperatives of the South African government is to improve access to land for the benefit of the formerly marginalized (Sabi, 2021). The country's government acknowledges the need to address the injustices of the apartheid legacy, particularly those concerning land because the agricultural sector plays an essential role in sustaining livelihoods (Mbatha et al., 2022). Smallholder farmers in South African former homelands cultivate a varied extent of large fields and smaller home gardens (de la Hey and Beinart, 2017). However, time series analysis of aerial photographs and qualitative methods encompassing household interviews, focus group discussions and oral histories indicate that the land area of cultivated fields is declining because smallholder farmers are progressively disengaging or abandoning field cultivation, in favor of home gardening (Andrew and Fox, 2004; Hebinck and Lent, 2007; Hebinck and van Averbeke, 2013; Kepe and Tessaro, 2014; Connor and Mtwana, 2018; Hebinck et al., 2018; Shackleton and Hebinck, 2018). These deagrarianization processes occur in one household at a time over a more extended period of decades (Hebinck, 2018). Thus, the process is not linear because the extent and rate of decline vary by place and time (Hebinck et al., 2018; Shackleton et al., 2019). Although deagrarianization in the former homelands of South Africa started during the colonial era, rural livelihoods continue to be vulnerable to the impacts of this phenomenon (Hebinck and van Averbeke, 2013). In the context of changing cultivation patterns, some smallholder farmers have adopted indigenous farming methods such as crop rotation, intercropping and polyculture to improve their livelihoods,

crop production and sustainable environmental management (Malapane et al., 2024). While the majority of previous research analyzed the decline in field cultivation, the decline in the availability of livestock also contributes to deagrarianization in South Africa (Shackleton and Ntshudu, 2023).

2.1 Drivers of deagrarianization: a South African context

The majority of previous studies on deagrarianization in South Africa have focused on the decline in field cultivation in the Eastern Cape (Mkhongi and Musakwa, 2022). Although some drivers of deagrarianization may be similar, these driving factors are context-specific and deeply rooted in the past but have profound implications for rural livelihoods and agricultural production. These drivers are influenced by a location's historical and socio-economic dynamics (Hebinck et al., 2018). A single driver might be interconnected to other drivers or have multiple implications for other livelihood activities (Hebinck et al., 2018; Shackleton et al., 2019). For this study, drivers are classified as political, socio-economic and ecological.

2.1.1 Political drivers

Deagrarianization is stimulated by various political factors, but the early 19th-century industrial revolution and Structural Adjustment Programs (SAPs) are some of the root causes responsible for agrarian changes in multiple sub-Saharan countries (Bryceson, 2002). In South Africa, deagrarianization primarily stems from colonial and apartheid land dispossession as well as proletarianization, which introduced a racial divide of resources (Wolpe, 1972; Plaatje, 2002). Although South Africa encountered processes of deagrarianization earlier than other African countries, the country's rural dwellers were the least affected by SAPs compared to those in Ethiopia, Nigeria, Tanzania, Malawi, and Zimbabwe (Bryceson, 2002). Today, in a democratic South Africa, poverty is still excessively concentrated in the former homelands of the country and a highly skewed distribution of farmland exists (Jacobson, 2013).

2.1.2 Socio-economic drivers

Government social grants in South Africa provide non-farm income, but this provision has been criticized for making people reluctant to cultivate and creating a dependency syndrome on the government, leading to reduced involvement in farming activities (Chitonge, 2013; Kepe and Tessaro, 2014; Ncube et al., 2014; de la Hey and Beinart, 2017; Blair et al., 2018; Masunungure and Shackleton, 2018). Other drivers, such as the death of livestock or a family member not only impact household income but also the transfer of agricultural knowledge and reduces labor availability for cultivation (Andrew and Fox, 2004; Manyevere et al., 2014; de la Hey and Beinart, 2017; Shackleton et al., 2019). Labor availability for cultivation has also been constrained by the aging and deteriorating health of smallholder farmers as well as the migration of family members actively involved in cultivation (Jacobson, 2013; Shackleton et al., 2013; Shackleton and Luckert, 2015; de la Hey and Beinart, 2017; Blair et al., 2018).

Migration, due to pursuits of improved income opportunities also motivates diversification from agricultural activities in rural areas of South Africa (Bryceson, 1996; Connor and Mtwana, 2018; Hajdu et al., 2020). Once laborers migrate, they could be reluctant to invest

in cultivation (Hebinck et al., 2018). Elderly rural household members also explain that young people are disinclined to cultivate due to changing aspirations and attitudes (Shackleton et al., 2013; de la Hey and Beinart, 2017). This affects social structures and knowledge transfer, including indigenous knowledge, which could be critical in sustaining crop cultivation (de la Hey and Beinart, 2017). The lack of capital, together with inadequate agricultural inputs, has significantly constrained field cultivation in the former homelands of South Africa (Andrew and Fox, 2004; Shackleton et al., 2013; Manyevere et al., 2014; Ncube et al., 2014; Thamaga-Chitja and Morojele, 2014; Shackleton and Luckert, 2015). Fallow fields may grow woody vegetation and be used for criminal activities. This increases fears of investing in farming resources and equipment (Shackleton et al., 2019).

2.1.3 Ecological drivers

Climate change is recognized as a major issue that negatively affects livelihoods, food security and agriculture in sub-Saharan Africa (Connolly-Boutin and Smit, 2016; Amoah and Simatele, 2021). For instance, weather-related challenges such as unpredictable rainfall and rising temperatures contribute to the decline in field cultivation (Ncube et al., 2014; Manyevere et al., 2014). Empirical evidence suggests that droughts, rainfall variability and soil degradation resulting from both erosion and decreasing soil fertility also contribute to the decline in field cultivation. These factors also result in a lack of interest in cultivation in former homelands of South Africa (Andrew and Fox, 2004; Shackleton et al., 2013; Ncube et al., 2014; Shackleton and Luckert, 2015).

2.2 Conceptual framework

The sustainable livelihoods approach was employed to guide data collection and analysis for this study. A socially sustainable livelihood can cope with and recover from stress and shocks and provide for future generations (Chambers and Conway, 1992). The sustainable livelihood approach is an analysis framework that includes livelihood strategies, livelihood resources, institutional processes and organizational structures (Scoones, 1998). This approach is often criticized for its reliance on quantifying livelihood assets, which can oversimplify the complex realities of rural communities. Despite this, the strength of the sustainable livelihoods approach lies in its focus on the functionality of rural livelihoods and how adopting specific livelihood strategies is negotiated between political, ecological, institutional and social dynamics (Cundill et al., 2012). Previous studies have applied the sustainable livelihoods approach to analyze how apartheid influenced the past and present activities of the South African agricultural sector (Mbatha et al., 2022). The deagrarianization process in South African former homelands reveals that the contributions of farming in rural livelihoods have declined. Thus, there is an increasing reorientation of livelihoods away from agriculture (Hajdu et al., 2020). During rural livelihood diversification, households construct a diverse portfolio of activities and social support capabilities to survive and improve their living standards (Ellis, 1998). However, rural households in South Africa continue to be vulnerable to poverty due to the social structural changes introduced by deagrarianization (Fischer et al., 2024). The sustainable livelihood approach was appropriate for this study because livelihood diversification is regarded as the starting point of deagrarianization

and a coping strategy against livelihood adversities. Thus, the approach enhances the understanding of how smallholder farming households have persisted despite global capitalism challenges that hinder farming. Based on these guiding factors, the approach assisted with comprehending field and garden ownership, cultivation patterns and challenges experienced by smallholder farmers in the study area.

3 Materials and methods

3.1 Study sites

This study was conducted in two villages, namely, Ambros, located in Umzimvubu Local Municipality, Alfred Nzo District, Eastern Cape province (30°37'58"S, 28°46'30"E) and Maramanzhi, situated in Musina Local Municipality, Vhembe District, Limpopo province (22°25'48"S, 30°48'25"E), South Africa (Figure 1). These study sites were selected to represent villages in South Africa's former Transkei and Venda homelands. Limpopo and Eastern Cape provinces also accommodate the highest proportion of households involved in agricultural activities in South Africa. Thus, the analysis of deagrarianization patterns and drivers in Ambros and Maramanzhi villages provides evidence-based knowledge on factors that negatively affect cultivation. The findings also assist with targeted interventions for agricultural development. The Umzimvubu municipal area is located within a subtropical climatic zone with average temperatures ranging from 7°C to 10°C in winter and 18°C to 25°C in summer. The municipality is also characterized by a combination of three biomes (forest, grassland and thicket). Annual rainfall ranges between 650 mm to 1,100 mm and soils are primarily red-yellow, apedal, freely drained

and suitable for cropping (SDF, 2015). Ambros covers an area of 2.27km² and has a total of 152 households, with a population size of 566. Local amenities available within and around the village include a school and a local supermarket. Musina Local Municipality lies in a tropical region defined by a savanna biome and a hot, semi-arid climate. The average elevation for this municipal area is 692 m, while annual rainfall is approximately 350 mm. Summer temperatures can sometimes increase to 45°C. A greater part of the municipal area has a flat terrain and a variety of soils, including sandy and lime-rich soils (Integrated Development Plan (IDP), 2021-22). Maramanzhi covers an area of 1.15km² with 171 households and a total population of 664. Compared to Ambros, Maramanzhi is surrounded by various local amenities, including schools, supermarkets, farm stalls, municipal offices, a taxi rank, a police station and a National Park. The study villages share similar characteristics in the sense that they are both rural, remote and characterized by fields that are distant from homesteads, but home gardens are located within homesteads. Both Ambros and Maramanzhi villages are nucleated and households are located in a grid layout. Access to water differs in these villages. Thus, the predominant source of drinking water for households in Ambros was water from the river. However, the main source of drinking water for households in Maramanzhi was taps in the yard. The availability and accessibility of water play a crucial role in supporting agricultural production and poverty alleviation (Dlangalala and Mudhara, 2020).

3.2 Approach and methods

A mixed-methods approach was used to collect and analyse qualitative and quantitative data that informed about deagrarianization

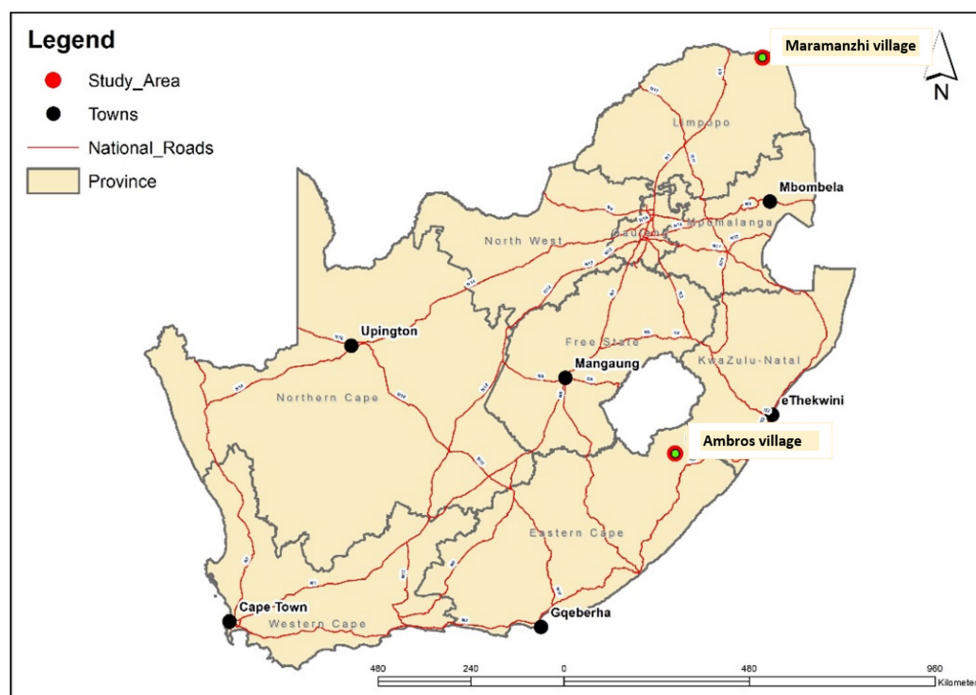


FIGURE 1
Study sites.

trends and associated drivers in Ambros and Maramanzhi villages. This approach was deemed appropriate because it facilitated the triangulation of findings and provided detailed responses about cultivation trends in the study area. Ethical clearance to conduct this study was obtained from the Ethics and Plagiarism Committee (FEPC) of the Faculty of Engineering and the Built Environment, University of Johannesburg on the 12th of August 2021, with ethics approval reference UJ-FEBE_FEPC_00307.

3.3 Data collection

Data collection for this study was conducted in August 2021. Permission to collect data in Ambros and Maramanzhi was granted by the local authority representative of each village. Quantitative and qualitative data were acquired from semi-structured questionnaires, transect walks and key informant interviews. Data collectors were employed in Maramanzhi to facilitate effective communication in the local language (mainly Tshivenda). These data collectors were trained on how to conduct interviews and capture responses. Informed consent was requested before commencing each interview (in both villages). Thereafter, written consent (signed consent form) was obtained from each participant.

3.3.1 Semi-structured questionnaire

A semi-structured questionnaire was used to collect data from household heads in Ambros and Maramanzhi villages. The questionnaires were administered through face-to-face interviews with one household head at a time. Simple random sampling was used to select household heads. This technique was applied because it was cheaper and required less knowledge about the population to be sampled. The sample size in Ambros was $n = 60$, but 54 responses, equating to a response rate of 90%, were completed. Regarding Maramanzhi, the sample size was $n = 60$, but 52 responses were completed, providing an 87% response rate. The selection of each household was based on accessibility and available household heads participated in the study. Household heads were deemed appropriate for this study since they are well-informed about agrarian changes and livelihood activities within their households. Open and closed-ended questions were used to collect quantitative and qualitative data related to demographics, land accessibility, cultivation dynamics and drivers of agrarian changes. Questions were asked in the local languages (IsiXhosa in Ambros and Tshivenda in Maramanzhi) to facilitate mutual understanding. The same questions were asked in both villages to enable comparison of emerging trends within the same context. Each interview lasted for approximately 45 minutes.

3.3.2 Transect walks

A transect walk is a qualitative technique used to show the location, description and distribution of features, resources and the main land uses in a community (Singh et al., 2022). Purposive sampling was used to select smallholder farmers in each village, based on their long-term residence in each village and farming experience (20 or more years). Two transect walks were conducted in each village with one smallholder farmer at a time to allow for direct observations of fields and home gardens. These walks were guided by a questionnaire survey and employed as a participatory tool for discussions with smallholder farmers, to understand cultivation

trends in each village. The distances covered in Ambros and Maramanzhi varied but we walked around each village for approximately an hour. The distances covered in Ambros were 1,400 m because fields were located in different regions of the village. However, the distance covered in Maramanzhi was 450 m. Field notes, recordings and photographs of home gardens, fields and farming equipment used by smallholder farmers were captured to assist with data analysis of emerging deagrarianization trends.

3.3.3 Key informant interviews

A total of four key informant interviews were conducted for this study. Responses from household heads and smallholder farmers assisted with the identification of stakeholders involved in cultivation in each village. Thus, agrarian officers were purposively sampled due to their extensive knowledge of extension services provided to smallholder farmers, cultivation trends and drivers of agrarian changes in the study villages. Regarding Ambros, semi-structured interviews were conducted with agrarian officers, one from Umzimvubu Local Municipality and another from the Eastern Cape Department of Rural Development and Agrarian Reform (DRDAR). Two agrarian officers from the Limpopo Department of Agriculture and Rural Development (DARD) were interviewed in Maramanzhi.

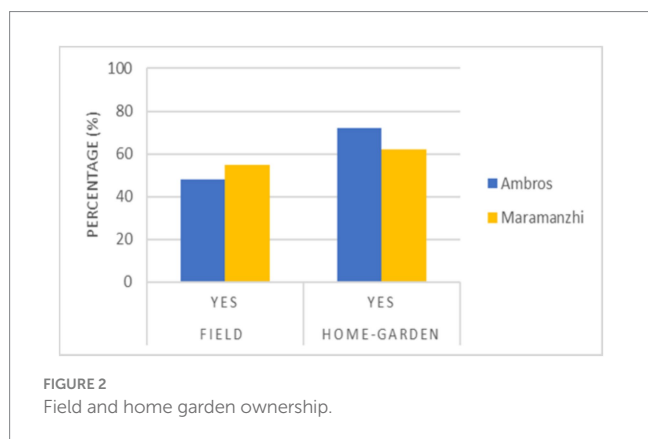
3.4 Data analysis

The collected data were hand-written on hardcopy questionnaires but some data were recorded with a cell phone. These audio recordings were transcribed into English. All the responses were captured on Google Forms and saved as a Microsoft Excel spreadsheet. Both the quantitative and qualitative data were coded by the researcher. Quantitative data analysis was completed using the descriptive statistics and custom tables analysis options of the IBM SPSS Statistics 27.0 computer program. All recordings were transcribed and NVIVO 12 software was used to analyse qualitative data such as perceptions related to arable land ownership and drivers of agrarian changes. Thematic analysis was conducted by reading through the responses of household heads, smallholder farmers and key informants to identify common concepts and patterns. The emerging themes were cultivation patterns, drivers of agrarian changes and the impacts of agrarian changes. Statements representing each of these themes were included to justify the study findings.

4 Results

4.1 Cultivation trends and arable land characteristics

There were 48% of household heads in Ambros and 55% in Maramanzhi who owned fields. Overall, a higher proportion (72%) of household heads owned home gardens in Ambros and 62% in Maramanzhi (Figure 2). The average size of these fields in Ambros was 6000m², but home gardens were 4100m². Furthermore, the average size of fields in Maramanzhi was 6200m² and home gardens were 4400m². During transect walks, smallholder farmers in Ambros and Maramanzhi alluded to how home gardens were located within the homesteads but fields were distant from homesteads. Discussions also



revealed that field cultivation was regarded as feasible for wealthier households who could afford to hire tractors and pay for inputs and materials such as fences and fertilizers. Overall, smallholders in Ambros and Maramanzhi indicated that the land area of cultivated fields has declined since 2005, and fallow fields were widespread as smallholders increasingly diversified to home gardens. The divisions of fields in Ambros were based on location; some were located in the upper region of the village, while some were in the lower region. Hence, the terms “upper region” and “lower region” fields are used in this study. Around 50 hectares of fields were once cultivated in the lower region, but only 10 hectares were under cultivation in 2021. Moreover, all the 130 hectares of fields (in the upper region) were once cultivated but only 15 hectares were cultivated during 2021. Household heads, agrarian officers and smallholder farmers all concurred that larger plots of fields were commonly cultivated if there was assistance from the government. Some smallholder farmers testified about their challenges and frustrations, stating that:

“Most cultivated fields are owned by households with members who used to have or currently have good jobs. These fields need a lot of time and money, which we don’t have”. (Ambros female respondent without a field).

“What is happening in our village is very sad because when other people see fallow fields, they will think we don’t like cultivation, whereas we just need assistance” (Ambros female respondent with a field).

“Things have changed; there never used to be so many fallow fields” (Maramanzhi, female respondent without a field).

“I don’t afford to cultivate my field; it needs a lot of money to maintain” (Maramanzhi female respondent with a field).

Disaggregated by gender, male-headed households had a higher percentage of field (62%) and home garden (59%) ownership in Ambros (Figure 3). However, female-headed households accounted for 67% of field and 56% home garden ownership in Maramanzhi.

Field and home garden ownership, disaggregated by the age of household heads, varied disproportionately between the different age group categories (Figure 4). The lowest ownership of fields was recorded for the age group between 20–29 in Ambros, while the age group

between 50–59 accounted for the least ownership in Maramanzhi. The highest percentage of field ownership in Ambros and Maramanzhi villages was for household heads aged 30–39 (35% and 41%) respectively. Regarding home garden ownership in Ambros, those aged 80–89 had the lowest ownership (3%), but those aged between 30–39 (39%) had the highest. The majority of home garden ownership (22%) was available for household heads aged between 60–69 and 40–49 in Maramanzhi.

Most fields (80%) in Ambros and 93% in Maramanzhi were last cultivated between 2016 and 2021. Similarly, home gardens (95%) in Ambros and 100% in Maramanzhi were last cultivated during the same period (Figure 5).

The distribution of income and the characteristics of fields and home gardens are highlighted in Table 1. The majority of households relied on social welfare grants for their source of income in both Ambros (57%) and Maramanzhi (63%). From the different land access options asked, most (84%) of the fields in Ambros and 83% in Maramanzhi were family-owned. All home gardens were family-owned in Ambros. While there is considerable variation between the two villages, 49% of home gardens were also family-owned in Maramanzhi. This was followed by 47% of gardens that were freehold and 4% that were inherited. A higher percentage of fields (59%) and home gardens (97%) were left fallow if uncultivated in Ambros. Likewise, if uncultivated in Maramanzhi, most fields (74%) and home gardens (65%) were also left fallow.

4.2 Drivers of deagrarianization

Factors that influence cultivation were not pre-determined but rather emerged from the themes provided by the respondents. Findings from interviews with household heads (Figure 6), indicated that lack of finances was the main driver (56%) contributing to the decline in field cultivation in Maramanzhi village. Other reasons in the village, as mentioned by household heads, included lack of inputs (42%) and labor shortages (31%). Key informants and smallholder farmers also emphasized how financial constraints and climate change significantly affected cultivation in the village. Household heads highlighted various drivers in Ambros, but a common factor that contributed to the decline in field cultivation was a lack of farming inputs (64%). Other commonly cited drivers in the village were financial challenges (48%) and labor shortages (36%). Key informants and smallholder farmers in the area also reiterated how the lack of money and insufficient agricultural resources negatively affected cultivation in the area. A female respondent from Ambros, with a household income of less than R3000 asserted that:

“We need water, electricity, fertilizers, fencing, seeds, and machinery”.

Another female respondent in Maramanzhi, earning between R3001-R6000 lamented: “I do not have enough money and labor to invest in my field; it has become fallow for more than 10 years now”.

5 Discussion

5.1 Emerging deagrarianization patterns

Rural households in the study sites are affected by a progressive deagrarianization process defined by a varying decline in field

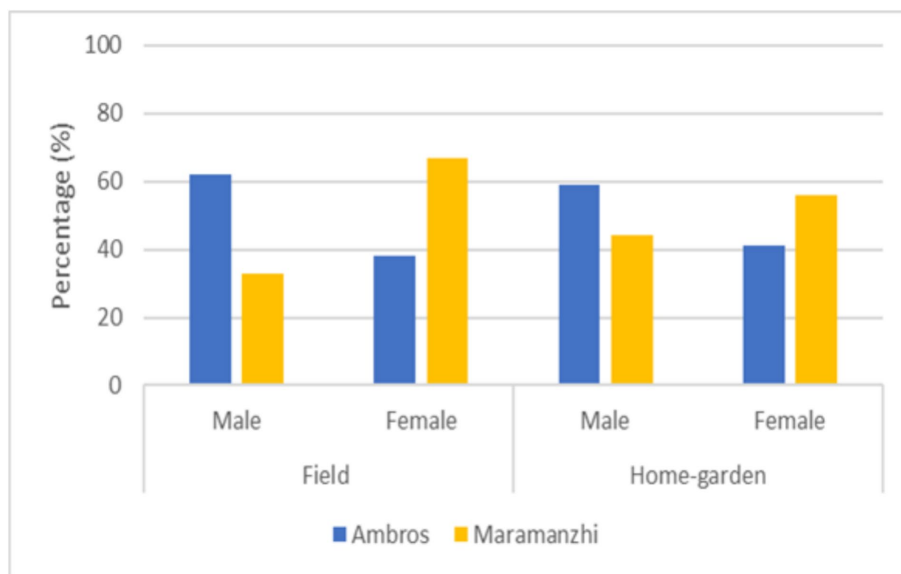


FIGURE 3 Field and home garden ownership disaggregated by gender.

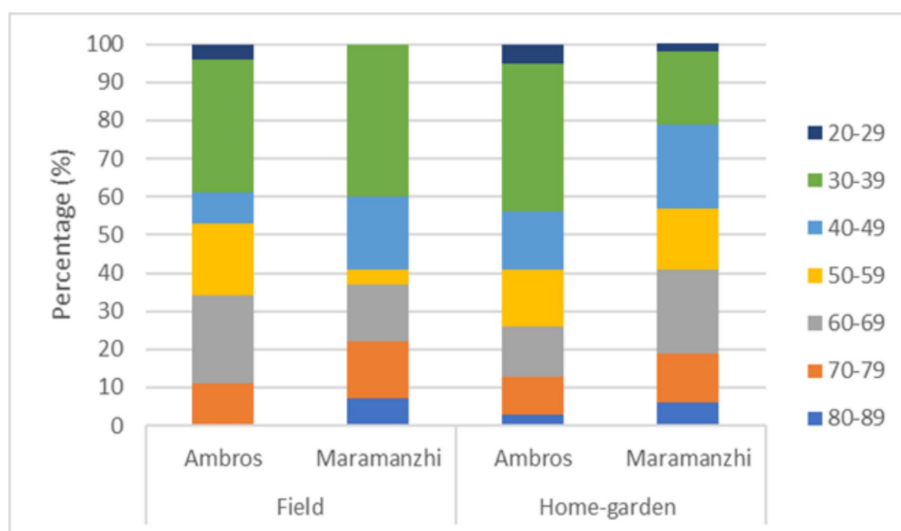


FIGURE 4 Field and home garden ownership disaggregated by age.

cultivation. This implies that the area under cultivation has decreased, while fallow fields have increased. The higher access to home gardens implies that this remains a crucial livelihood activity, replacing field cultivation in some instances. However, the diversification to home gardening did not imply that all the land area of these gardens was cultivated in both Ambros and Maramanzhi. Instead, this transition was adopted as a coping strategy against hunger and other livelihood adversities. Connor and Mtwana (2018) substantiate that the benefits of home gardens extend beyond agricultural productivity to maintaining household integrity. In contrast to fields, and regardless of the cultivated land area, home gardens are usually adjacent to homesteads. They are fenced, easier to integrate with household tasks, less labor intensive and provide direct access to food (de la Hey and

Beinart, 2017; van der Horst and Hebinck, 2017; Connor and Mtwana, 2018; Shackleton et al., 2019). The shift in cultivation patterns reflects a broader strategy of livelihood diversification and a survival strategy adopted by smallholder farming households affected by socio-economic and ecological pressures. These deagrarianization processes have negative implications for rural livelihoods because smallholders may relocate from their places of residence to engage in different activities. Subsequently, farming identities, memories and values attached to local cultivation, social structures such as household size and inter-generational relationships become disrupted. These findings are consistent with Fischer et al. (2024) who explain that deagrarianization undermines social cohesion in farming and exacerbates poverty because smallholder farmers progressively

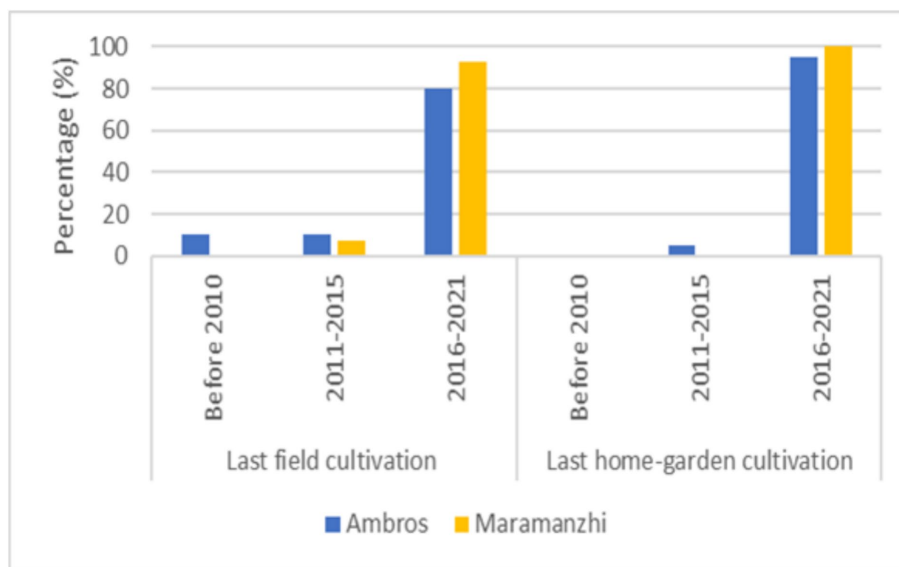


FIGURE 5 Last cultivation period for fields and home-gardens.

TABLE 1 Income and characteristics of fields and home gardens.

Question	Category	Ambros (%)	Maramanzhi (%)
Main income source	Agriculture	4	17
	Social grant	57	63
	Formal income	13	12
	Remittances	17	6
	Other	9	2
The main member involved in cultivation	Father	46	52
	Mother	28	50
	Child	17	17
	Laborer	6	4
Access to fields	Family Owned	84	83
	Communal	16	17
Access to home gardens	Freehold	0	47
	Family Owned	100	49
	Inherited	0	4
Field use if uncultivated	Grazing	41	26
	Fallow	59	74
Garden use if uncultivated	Grazing	3	35
	Fallow	97	65

disengage from farming without alternate livelihood options to substitute cultivation.

The land used for homesteads and fields in both Ambros and Maramanzhi is under a traditional governance system. Hence, the local chiefs assign land to households. Although households owned both fields and gardens, the use of this arable land varied between the two villages. The extent to which fields are used requires broad scrutiny since fields, including those that are fallow, are a form of

security suitable for various uses (Cousins and Scoones, 2010). Remarkably, field cultivation in 2021 suggested that 88% of fields in the upper region and 80% in the lower region were fallow in Ambros. Similarly, 30% of fields were fallow in Maramanzhi during the same year. Most notably, harvesting and cultivation periods also differed between the two villages. Land preparation for cultivation in both villages commenced during the mid-spring season (October–November). However, during the winter season (June–August 2021),

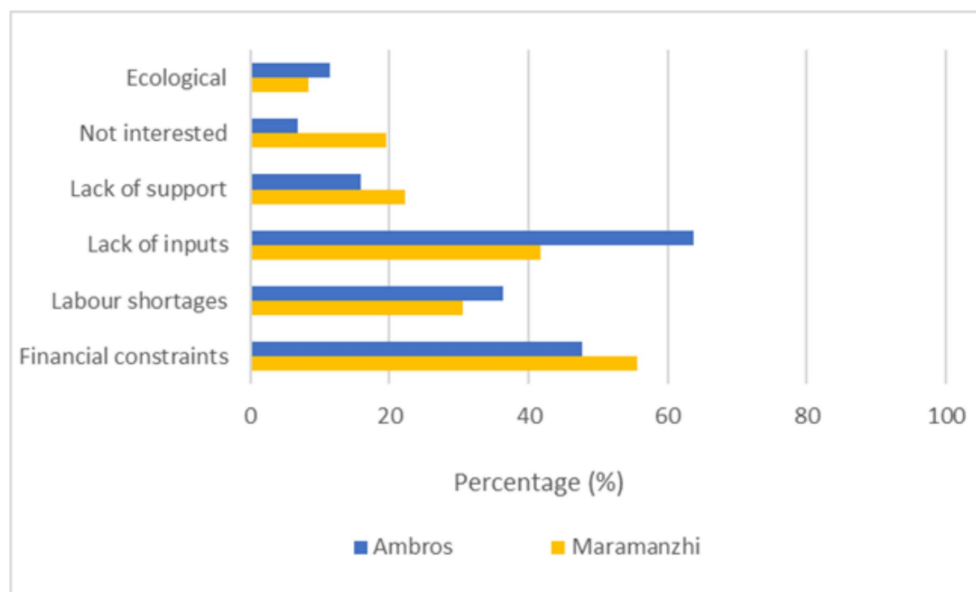


FIGURE 6
Drivers of agrarian changes.

fields in Ambros were all harvested, while those in Maramanzhi were still cultivated. Despite these variations, smallholder farmers still valued their land, even if unused, and considered it an important asset and means of production for their families. Shackleton et al. (2013) also concur that smallholder farmers are not keen to separate with their land, even if it is fallow or unused. Moreover, rural homes represent a sense of belonging and contribute significantly to human well-being and cultural identity (Njwambe et al., 2019).

The Yellow Maize Ploughing Program introduced in Ambros during the last quarter of 2020 significantly contributed to cultivation changes in the village because fewer smallholders engaged in field cultivation during the program. Smallholders bemoaned that at the beginning of the Yellow Maize Ploughing Program, an agreement was reached to combine individual fields located in the upper region. This meant that the management of fields was controlled by those who could afford to pay the commitment fees required to maintain fields. In most cases, this fee was only afforded by households regarded to be wealthy. Strikingly, the ownership of fields did not translate to sustainable crop production in Ambros village. Instead, poor households became vulnerable to hunger and poverty. Similarly, other studies discovered that, in contrast to poorer households, wealthier households were significantly more likely to cultivate their fields because of access to diverse livelihood options (Jacobson, 2013; Fischer, 2022).

Gender variations in field and home garden ownership and involvement in cultivation were also evident in Ambros and Maramanzhi. This significant difference highlights how inclusive participation in agriculture needs to be enhanced to promote gender equity and empower the previously disadvantaged, more especially women in South Africa. Compared to men, women in the country have been deprived of equal access to agricultural resources because they are perceived as home care providers and extension services fail to understand their roles and required resources (Hart, 2008; Dlangalala and Mudhara, 2020). The South African Quarterly Labor

Force Survey also highlights disproportionately higher unemployment rates for females, compared to males, between the first quarters of years 2016 and 2024 (Statistics South Africa, 2024).

While some households in Ambros and Maramanzhi villages receive income from agriculture, the majority of households receive their primary source of income from non-farm activities, mainly social grants. This implies high unemployment rates in both villages. These high unemployment rates resonate with Zizzamia (2020), who highlighted that rural areas in South Africa are marginalized, less developed and located further away from economic opportunities, depriving smallholder farmers of market access and employment opportunities. Other studies also emphasize that the development of effective strategies to attract the youth to agricultural employment is a critical challenge that contributes to unemployment in South Africa (Geza et al., 2022).

5.2 Drivers of deagrarianization

The decline in field cultivation underscores the presence of factors that constrain crop production in the study area. Livelihood diversification away from farming could negatively impact livelihoods and the environment (Sikhunyana et al., 2020). Thus, the analysis of agrarian changes was crucial for identifying the various drivers of deagrarianization in the study area. Similar drivers were ascribed to the increase in fallow fields in Ambros and Maramanzhi, but smallholder farmers were disproportionately affected by these factors. Despite these drivers, smallholders have not abandoned agriculture. Results showed that variations in the extent of fallow fields were affected by the availability of finances and farming resources in the two villages. For instance, financial challenges in Ambros largely stemmed from the financial contributions required from smallholders to maintain fields. Due to these requirements, some of the fallow fields in Ambros were only cultivated in 2020 when the government assisted

smallholder farmers with extension services. These trends raise concerns about the future of field cultivation because field cultivation has become an assistant-dependent activity instead of improving rural livelihoods and creating employment opportunities. Financial constraints attributed to agrarian changes in Maramanzhi included the lack of money to purchase cultivation resources and inputs such as fertilizers, pesticides and insecticides required to protect crops. Households that receive a higher income, mainly from formal employment or remittances, were regarded as more capable of investing in field cultivation. In some instances, smallholder farmers were keen to cultivate, but the money required as a commitment fee for field cultivation discouraged farmers. In other cases, competing household demands, particularly food purchases, also made investing in agriculture less of a priority among households. Overall, the financial challenges for farming in former homelands of South Africa remain complex since some households depend on remittances from migrant laborers. However, these migrant laborers have reduced their contributions or invested in other household needs besides farming (De la Hey and Beinart, 2017; Hebinck et al., 2018). Other factors, such as COVID-19, negatively affected crop production in South Africa because income and the functioning of agricultural activities were disrupted for prolonged periods during the pandemic (Mthembu et al., 2022).

Labor shortages were also pronounced in the study sites because of the declining physical ability of smallholder farmers and limited finances to purchase or hire machinery such as tractors. The reductions in cattle, as a result of droughts in Ambros and Maramanzhi affected the availability of labor for cultivating. Thus, fewer smallholders were keen to invest more labor in cultivation. The increasing prices of fertilizers, seeds and chemicals also constrained cultivation, leading to a lack of interest and the ultimate disengagement from field cultivation in both villages. The majority of people still cultivated in both villages, but fewer young people were determined to cultivate fields in Maramanzhi. This was mainly because of the prospects of engaging in non-farming activities, since the village is close to tourist destinations and other local amenities such as local stalls and a taxi rank. The reported prevalence of droughts in Ambros and increased temperatures in Maramanzhi contributed to the higher rates of fallow fields, particularly in Ambros. Previous studies demonstrate that between 2015 and 2019, the Eastern Cape was affected by climate change-induced droughts which significantly affected cultivation in the province (Archer et al., 2022). Post-2019, villages such as Ambros continued to experience droughts which contributed to a decline in field cultivation.

Based on the findings, recommendations are discussed to develop strategies for sustainable field and home garden cultivation. Firstly, a fundamental approach to addressing deagrarianization lies in integrated agricultural and rural development policies. Consistent monitoring and evaluation of agricultural projects is also required to ensure that agricultural development programs are sustainable and can address local challenges. Furthermore, to reduce the dependency on social grants, government support should be extended beyond farming inputs to include infrastructural development, investments in research and strategic partnerships that navigate between employment opportunities, mentoring and training of smallholder farmers. The use and combination of indigenous knowledge systems such as organic farming, including intercropping and fertilizing with kraal manure, need to be encouraged as a cost-efficient strategy for imparting

knowledge and enhancing crop production. Attempts to promote gender equity and increase involvement in cultivation should also focus on improving access and dissemination of information on career and employment opportunities within the agricultural sector. This could also assist with adaptation strategies for challenges such as climate change. Lastly, farmers should also be encouraged to consider drought-tolerant crops to mitigate the effects of droughts as well as low and erratic rainfall.

6 Limitations

The limitations of this study were that the focus was only on Ambros and Maramanzhi villages. However, the findings have provided empirical evidence on the patterns and drivers of deagrarianization in the former Transkei and Venda homelands. Moreover, data were collected during the COVID-19 pandemic, which restricted physical interactions and traveling, but all safety regulations were adhered to. For instance, masks and sanitizers were used throughout the data collection process.

7 Conclusion

This study's findings reveal several socio-economic and ecological challenges that contribute to the decline in field cultivation. Rather than enhancing crop production and rural livelihood opportunities, fields are increasingly becoming fallow. Such patterns have a detrimental effect on social structures and attempts to mitigate rural poverty. To a large extent, agrarian changes mirror the socio-economic conditions of villages which drives smallholder farmers to adjust their livelihood activities. Given the impacts of drivers such as financial constraints and climate change, deagrarianization is anticipated to intensify, making it more challenging to attain sustainable rural livelihoods in South Africa. Thus, the large areas of fallow fields in former homelands of South Africa should not be accepted as abandonment of agriculture. Instead, the government needs to assist with revitalizing fallow fields to enhance employment opportunities and poverty alleviation.

Data availability statement

The datasets analyzed for this study can be found in the name deagrarianization results under <http://dx.doi.org/10.17632/m8g2kwy97x.1>.

Ethics statement

The studies involving humans were approved by Ethics and Plagiarism Committee (FEPC) of the Faculty of Engineering and the Built Environment of the University of Johannesburg. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

Author contributions

FM: Conceptualization, Formal analysis, Investigation, Methodology, Resources, Software, Visualization, Writing – original draft. WM: Conceptualization, Methodology, Supervision, Writing – review & editing. TM: Conceptualization, Supervision, Writing – review & editing.

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Supplementary material

The Supplementary material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fsufs.2025.1424117/full#supplementary-material>

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