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Agrekon

Agricultural Economics Research, Policy and Practice in Southern Africa

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/ragr20

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To cite this article: Odile Mackett (2021) Female farm holding in Botswana's agriculture industry, *Agrekon*, 60:3, 317-334, DOI: [10.1080/03031853.2021.1940222](https://doi.org/10.1080/03031853.2021.1940222)

To link to this article: <https://doi.org/10.1080/03031853.2021.1940222>



Published online: 02 Jul 2021.



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Female farm holding in Botswana's agriculture industry

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ABSTRACT

In the Botswana Labour Force Survey, agriculture was identified as the fastest growing employing industry with growth mainly driven by the entrance of women into the industry. As such, the purpose of the study was thus to investigate how the demographic profile of farm holders have changed in Botswana over time. Using Agricultural Survey Reports, the paper descriptively analyses changes in the gender and age composition of farm holders in Botswana. The study found that the industry has in fact employed a larger share of women, but that the movement of women into the industry was still largely dependent on those of men. This is evident in the fact that the share of married male and female farmers move in opposite directions. It also found that during times of distress women's share as farmers increased. The movement of men and women in the industry indicates that policies which have historically been geared towards the needs and characteristics of male farmers and their households may require gender mainstreaming to accommodate female farmers and their households. This paper opens up a debate around gendered social assistance which accommodates women not just as ordinary household members, but more specifically farmers.

ARTICLE HISTORY

Received 17 August 2020
Accepted 31 May 2021

KEYWORDS

Botswana; agriculture;
women; poverty; labour

JEL CODES

Q12; Q18; B54; P28

1. Introduction

Botswana has been crowned the jewel of Africa and is the first of only five Least Developed Countries to graduate to “developing country” status (De Vylder 2007; United Nations 2020). The country has reached growth rates which have at some point been the highest in the world and had a seeming immunity to the traditional economic and political challenges African countries tend to face – providing what seemed like a good model for economic development in Africa (UNCTAD 2016). However, against the backdrop of this favourable economic outlook, Botswana has seen high unemployment rates, inequality levels, and poverty (Siphambe 2003; Matandare 2018; Appiah et al. 2020). Although the poverty and inequality rates have declined over the last few years, they still remain significantly high (Magombeyi and Odhiambo 2017). In the 2015/16 period, an estimated 16.1% of the population lived below the \$1.90 a day poverty line and the Gini index was estimated at 53.3% for the same period (World Bank 2020a).

In addition, Botswana's gender inequality index has remained close to South Africa's (one of the most unequal societies in the world) over the last 25 years (UNDP 2020). Women are also disproportionately affected by the scourge of unemployment, with an unemployment rate of 21.6% recorded for the third quarter of 2019, compared to 19.8% for males (Statistics Botswana 2019). Furthermore, Botswana's poverty primarily stems from its rural areas, where women, the youth, and those

who engage in agricultural labour are most severely affected (Magombeyi and Odhiambo 2017; Matandare 2018).

This poverty is exacerbated by Botswana's landscape which is not particularly conducive for agricultural development due to persistent drought and disease (Chipanshi, Chanda, and Totolo 2003; Magombeyi and Odhiambo 2017; FAO 2018). However, the country has managed to diversify its exports to the point where close to 95% of total exports consisted of manufacturing products in 2019 (WTO 2019). Despite this, agricultural exports still comprise an important part of Botswana's total exports, though the contribution of the industry's products to total exports have decreased over time (WTO 2016, 2019). As a result, the government has implemented a number of programmes to assist farmers in their quest to become self-sufficient in their farming, but also to introduce relief programmes in the form of short-term employment as well as cash transfers given to farmers directly during times of distress (Lekobane and Seleka 2011; Magombeyi and Odhiambo 2017). Many of these have been designed, as expected, to accommodate and assist individuals who have usually been engaged in traditional agricultural labour – typically men (FAO 2018).

These programmes have continued supporting the traditional farmer despite the fact that growth in Botswana's agricultural industry has been characterised by the entrance of women into the industry (Malindini and Mackett 2018). This is particularly important as women are impacted disproportionately by climate change, poverty, inequality in labour market outcomes, as well as a lack of access to other productive resources (Ntseane 2004; Hovorka 2006). Although an abundance of literature exists on agriculture in Botswana, the focus of this research has been on women in the general labour market (Ntseane 2004), the inequality in the distribution of cattle amongst farmers (Osei-Hwedie 2004), the types of farming techniques most conducive to the climate (Gagoitsiwe and Keba 2020; Thutwa et al. 2020), and more recently the overall impact of climate change (Moseley 2016; Mogomotsi, Sekelemani, and Mogomotsi 2020). Where the focus has been on women in agriculture, the literature is dated (Fortmann 1984) or looked at from the perspective of urban agriculture (Hovorka 2005a, 2005b, 2006). This is despite the fact that agriculture literature on Botswana habitually highlight female farmers as a vulnerable group within the sector (Jefferis et al. 2012; FAO 2018; Kampamba et al. 2019). This paper thus endeavours to fill the gap by demonstrating the growing importance of women in the agricultural sector.

Furthermore, in enumerating agricultural workers, the Botswana government has faced a number of challenges. These include the fact that the last nationally representative Labour Force Survey was the 2005 wave – undertaken more than 15 years ago. Authors which have made use of these surveys tend to focus on work outside agriculture due to the seasonal nature of agricultural work and the manner in which labour force surveys are conducted, resulting in flawed enumeration of workers in the industry (McCaig and McMillan 2020). Secondly, Botswana's Labour Statistics Report, which is undertaken more regularly, is likely to undercount agricultural activities and workers, given that it is conducted via a mailed survey to *formally* established organisations only (Statistics Botswana 2011, 2017a, 2017b). To augment this information, Statistics Botswana conducts an Agricultural Survey in order to keep up with changes in the industry. This survey has primarily been used to ensure that programmes of support by the Botswana government are targeted appropriately. However, the focus of these surveys has been on changes in livestock and crop production, as well as tracking droughts across different regions of the country (Statistics Botswana 2015) and much less concentrated on *who* these programmes are meant to support and how different people might need different forms of support.

Given that in its Vision 2016 the government commits itself to gender equality between men and women, it is important to firstly, highlight, as was done by the FAO (2018), the need for gender disaggregated data which can assist in appropriate monitoring of progress towards this goal. Secondly, using the limited amount of data which are available, this paper highlights how the change in farm holder profile has made this need even more imperative.

Making use of the Agricultural Survey Reports, this paper shows how the demographics of agricultural farm holders have changed over time. By doing so, this study does not attempt to empirically investigate whether relief programmes by the government have adversely affected female farmers, or to prove that they are in fact biased towards the well-being of male-headed households and farms. Nor does it seek to establish how productivity in the agricultural industry can be increased, but rather to take a first step towards acknowledging and highlighting the fact that farm holders are no longer just males and that women have also entered the industry as farm holders.

This is an important development to take note of as a change in the type of farm holder will mean that interventions undertaken to support the industry and its participants would also need to change to address the needs of those farm holders. Furthermore, the needs of female farmers are not always comparable to those of male farmers and thus interventions cannot simply stay constant as women are disproportionately affected by challenges relating to climate change, how labour is distributed in the household, how much time is expended on that labour, and the types of resources that their households would have access to (Hovorka 2006).

This paper provides a discussion of theoretical approaches to women in the agricultural industry, this is followed by how the government has attempted to aid those in the industry and a brief overview of what is known about women's involvement in Botswana's agriculture sector, based on available data. A description of the data utilised in the study is then provided and this is followed by the presentation and an analysis of these data. The paper ends with a short concluding discussion.

2. Literature review

2.1 Theoretical perspectives of women in agriculture

The global trend of women entering the labour force in recent decades has been widely documented (Raney et al. 2011; Ntuli and Wittenberg 2013; Mei 2014; Rostgaard 2014; Chun and Oh 2016). This phenomenon has challenged the assumptions of traditional labour supply theories and reasons for this increase in female labour force participation have been explored internationally and in country case studies (Madden 1981; Standing 1999; Waldfogel, Higuchi, and Abe 1999; Seguino 2000, 2007; Casale 2003; Benería and Floro 2005; Lewis 2010). These studies have found that women's move into the labour market has been a result of fragmented families, increasing divorce rates, decreasing marriage rates, decreased fertility, a growing incidence of anti-discrimination labour laws, the added worker effect, and the rising productivity of household labour.

As such, important questions have been raised about the conditions under which women have been entering the labour force and the extent to which this has been a positive development for them. Entrance into particular industries and types of work have also been noted. In South Korea, for instance, women have been crowded into export industries where their cheap labour has been exploited, while in South Africa, women's entry into the labour market has been met by access to generally low paying jobs (Casale 2004; Seguino 2007). In many instances, women's labour force entry has thus not been viewed as an entirely positive outcome, as has been alluded to in the neoliberal economics literature (Machacha 2015). Women's labour force entry and participation in the economy should thus not immediately be viewed as an automatic qualifier for their empowerment. It is, however, an important indicator when viewing empowerment as a *process*, given the potential for increased agency (Wyndow, Li, and Mattes 2013).

To better distinguish between empowerment and equality in agriculture particularly, Alkire et al. (2013) developed The Women's Empowerment in Agriculture Index (WEAI). In this index, the authors identify five domains of empowerment which includes production, resources, income, leadership and time. Though these are intended to be used in tandem, particular emphasis will be placed on the production domain.

The production domain "refers to sole or joint decisionmaking about food and cash crop farming, livestock and fisheries, and autonomy in agricultural production" (Alkire et al. 2013, 73). However,

cognisance must be taken of how the other four domains interact with the production domain. For instance, Alkire et al. (2013, 73) state that a “woman may decide to plant trees, but if she does not have rights to the land or credit to purchase inputs, she may not be able to do so”. Thus, an increase in farm holding may give women decision making power, although if such power is not complimented by additional support measures, it decreases her ability to exercise her power.

With agricultural labour, the debate around women’s work has been further complicated due to the invisibility of agricultural workers, and female agricultural workers in particular. This invisibility has been said to be due to institutional biases in data collection, such as the definitions used, the selection of traditional households as sampling units, but also as a result of the seasonal nature of agricultural work, and the subsequent classification of workers in surveys (Sender, Cramer, and Oya 2005; Oya 2013). Women have suffered even more from this undercounting as in instances where their households are sampled, they tended to be recorded as unpaid family members (Sender, Cramer, and Oya 2005). Thus, investigations surrounding the determinants of women’s labour and their contributions in agriculture become even more challenging. In terms of the WEAI, these limited methodological approaches mean that often women’s *time* is not accounted for accurately; another important aspect of empowerment in agriculture.

The labour market segmentation theory is also relevant as labour markets are often segmented by race, gender, and a division into primary and secondary sectors (Reich, Gordon, and Edwards 1973). While agricultural work is undoubtedly always considered to be part of the secondary economy, specifically rural agriculture, within this sector women have further been relegated or restricted to performing certain tasks. These are related, not only to their perceived skills ascribed to their physical attributes (“nimble fingers” for careful work (Oya 2013)), but also to their gendered roles as primary caregivers within the household. These activities make them more susceptible, than men, to the challenges related to agriculture given that they are more likely to engage in crop production than cattle farming (Modesto 2016). This is attributable to the challenges around inheritance surrounding cattle and land, but also because they are responsible for feeding their families, and it has been theorised that their time might be more productively spent on crop production (Rothschild-Safilios 1985).

In addition to the gender roles to which women must conform, additional formal and informal institutions also act as barriers, such as the custom in Tswana culture, where women were historically treated as minors. Women were restricted in their rights, and they could for instance not sue someone in court independently, nor could they inherit cattle from their fathers or husbands (Kossoudji and Mueller 1983; Fortmann 1984). Furthermore, women also used to face challenges in relation to land ownership, as a result of inheritance rights (Modesto 2016). The “traditional land rights laws, which underline the importance of children, especially of sons, in women’s access to land after the death of the husband, serve also to reinforce sex stratification and high fertility rates” (Rothschild-Safilios 1985, 300). These inheritance laws changed with the Deeds Registry Amendment Act which was passed into law in 1996.

Although these restrictions are no longer written into law, they are often still observed customarily in rural Botswana, and the role of customary courts have remained important in Botswana’s legal system, despite the emergence of more liberal statutory legislation (Kossoudji and Mueller 1983; Werbner and Werbner 2020). A positive development though, is that women’s right to inherit property has been established by a customary court and gender equality has thus become a priority for these courts (Werbner and Werbner 2020). However, despite these formal applications of principles in favour of gender equality within Botswana’s society, many restrictive practices and views still exist informally. This was notable in the traditional perceptions of marital rape, for instance, which were expressed in Botswana’s customary courts during consultations for the drafting of the Domestic Violence Bill (Nasha 2020).

Though these social customs are a struggle for women, there is evidence that even in precolonial times, women were the primary agricultural labourers who held entire households together while men sometimes unsuccessfully embarked on hunting expeditions (Mies 1998). This is further confirmed by Bryson (1981) who postulated that women became even more important in agriculture

as time went on and men started engaging other work responsibilities. She further stated that the “demands on male labour helped to ensure that women would continue to dominate food crop production both to guarantee the food supply and to protect family rights to property in accordance with inheritance and land tenure customs” (Bryson 1981, 38).

These traditionally assigned gender roles are still evident today, where men often leave rural areas in search of work in urban areas, specifically during times of hardship. While this may be economically beneficial for a family, this often leaves women to manage the farm work left behind by males. This is done in addition to their own agricultural work that they usually perform, as well as their reproductive responsibilities towards the family who remain behind. In such instances women act as substitute labourers or a reserve army of labour, which is used and discarded as and when needed and are severely restricted in terms of their available time (Wolpe 1972; Alkire et al. 2013; Malindini and Mackett 2018).

2.2 Government assistance in rural Botswana

According to the African Development Bank (2000), Botswana achieved an average growth rate of 7.3% from 1970 to 1995; this growth rate has since decreased to 3.5% in 2019 (African Development Bank 2020). Significantly reduced, but still well above the average growth rate of 2.4% (2018) in Sub-Saharan Africa (World Bank 2020b). However, despite this remarkable growth, the latest available estimates show that close to 50% of the population lived below the poverty line, with 55% of rural dwellers living in poverty, of which 52% were women (African Development Bank 2000; FAO 2018). Although the government has managed to provide free public services, such as universal primary education and free healthcare, many who engage in subsistence farming live in remote areas where infrastructure to benefit from these services are not available (African Development Bank 2000; Modesto 2016). In addition, a large cause of this is as a result of the economy’s inability to translate its record economic growth rates into employment opportunities for its citizens. This thus leaves individuals living in rural areas particularly vulnerable, and female-headed households even more so. A report by FAO (2018) stated that 33% of female-headed households are poor households, compared to 27% of male-headed households.

Looking at data which ran up to 1993, Hope (1996) reported that in Botswana’s post-independence period (post-1966), the country managed growth rates which averaged 13%, while the share of agriculture in GDP declined from 40% to only 5% over the same period. A further decline was noticeable as the share of the industry to GDP declined to 2.6% in 2000 (Modesto 2016). According to a 2016 study, that share had further declined to 1.8% in more recent years (Moseley 2016), and slightly increased to 2% in 2018 (Plecher 2020). However, despite these declines, Botswana’s agriculture industry is an important export industry (WTO 2016) and regulations and management by the Botswana Meat Commission has also assisted the industry (Moseley 2016).

Crop farming, however, has not performed as well. Studies have estimated that Botswana imported as much as 90% of its food and this has been attributed to a policy change from self-sufficiency in the post-independence period to a more neoliberal policy of food security in the 1980s (Botswana Institute for Development 2006; Moseley 2016). However, Moseley (2016, 9) notes that “crop agriculture still remains an important activity for the poor and women”. Women are thus at the receiving end of the struggles in relation to agriculture. As a result of their involvement in crop agriculture, they are also most severely affected by challenges in relation to climate change and the effects this has on agricultural production (FAO 2018; Gagoitsiwe and Keba 2020).

In addition to policy change, the landscape is characterised by irregular rainfall and droughts, which has made the farming of certain crops unsustainable, but has also had adverse effects on the cattle population (Botswana Institute for Development 2006; Gagoitsiwe and Keba 2020; Thutwa et al. 2020). Holm and Morgan (1985, 464) has stated that drought “in some form is present in the country seven out of every ten years, of which three on average are severe”, and in some areas of the country it has been estimated that 75% of farming activities are dependent on regular rainfall patterns (Mogomotsi, Sekelemani,

and Mogomotsi 2020). Indeed, regular droughts have been recorded in Botswana over the periods of 1981–1986, 2003, and 2015 (Hope 1996; Statistics Botswana 2013, 2015). Droughts are particularly severe when they occur in consecutive years, such as the drought which occurred in the 1980s (Holm and Morgan 1985). These conditions are undoubtedly one of the many reasons why agriculture has declined as severely as it has in the country.

However, the government does provide public welfare support in official drought years (Moseley 2016). These have included the Young Farmer's Fund, the National Policy on Rural Development, Remote Area Development Programme, Accelerated Rainfall Programme, Integrated Support Programme for Arable Agriculture Development, and the Labour Based Drought Relief Programme, to name a few (Magombeyi and Odhiambo 2017). Many of these programmes were implemented with the aim of improving productivity and production in traditional farming.

The Accelerated Rainfall Arable Programme (ARAP), for instance, came in the form of providing farming households with seeds, fertilisers, and fencing to protect crops (Seleka 1999). This type of support assumes that farming households have a sufficient amount of labour and skills to use these resources and it has been found that women have more constraints on their time as well as lower levels of education and skills to make use of these supplies (Modesto 2016; Gagoitsiwe and Keba 2020). These skills could not only assist them in using these resources more productively, but also to use agriculture as a way to build businesses beyond subsisting or providing food for their immediate households. In addition, research has found that the household size and having access to hired farming and family labour are all factors which increase the likelihood of being beneficiaries of the Integrated Support Programme for Arable Agricultural Development (ISPAAD) (Motlhwa, James, and Yunxian 2019). These are all factors which women are less likely to have access to, and if they do, to a lower degree compared to men.

Lack of finance, a key factor challenging growth in agriculture in Sub-Saharan Africa and a key domain of empowerment in the WEAI, is similarly endemic in Botswana (FAO 2018). It has been reported that Botswana has a lack of micro-finance institutions, which are often vital sources of funding to small scale farmers and of which women make up two-thirds of the clientele (*informal* finance institutions) (Jefferis et al. 2012). Where institutions provide funding specifically for women, deposits are often required from potential beneficiaries to secure loans. This has proven particularly challenging for women (and young people) whose lack of property ownership leaves them unable to provide collateral to such funders.

As such, the majority of these programmes have been criticised for being gender neutral (FAO 2018). The FAO (2018, 39) notes that "systematic gender mainstreaming is lacking in agriculture and rural development initiatives in Botswana" and this becomes particularly pertinent when considering how the participation of women in agriculture has changed. These patterns will briefly be described in the next section.

2.3 Women's employment as agricultural labourers in Botswana

As noted in the previous section, agriculture does not play the macroeconomic role it used to in Botswana, and the industry's share in GDP has drastically declined since the 1960s (World Bank 2020c). The decline in agriculture as a contributor to GDP in Botswana also saw a decline in traditional farming. Whereas traditional agriculture used to occupy more than a third of the population in 1984, only 15% of the labour force was employed in this industry by 1991 (Hope 1996). However, despite this decline in agriculture, in the latest wave of Botswana's Labour Force Survey, the industry seemed to have made a remarkable comeback in relation to its share in overall employment.

Using the 1995/96 and 2005/06 Labour Force Survey data, Malindini and Mackett (2018) found that agriculture was the fastest growing employing industry over the two periods. This is of interest as previous studies (Ajilore and Yinusa 2011; Lekobane and Seleka 2011; Magombeyi and Odhiambo 2017) have shown that the agricultural industry has not been able to provide rural dwellers with sustainable livelihoods due to persistent drought and disease (Malindini and Mackett 2018).

The share of employment in the overall economy grew from 15% in 1995 to over 25% in 2005 (see [Figure 1](#)), with many of the other industries reporting a decline in the share of employment over the same period. It is thus unlikely that this increase could simply be ascribed to better data collection methods.

A closer look at the Labour Force Survey data show that this increase was driven mainly by an increase in the employment of females. Female employment in the agricultural industry increased from 32% to 39% between 1995 and 2005, while male employment in the industry decreased from 68% in 1995–61% in 2005 (see [Figure 2](#)). While these figures seem marginal, this is equivalent to a 23% growth in female employment and a 11% decline in male employment.

Although the data still show that in 2005/06 a larger proportion of males than females were still employed in this industry, the fact that the significant growth in employment was largely driven by women should be of interest. Especially since women have traditionally been restricted from fully participating in the industry.

Further to this, given that women are more adversely affected by poverty (Razavi 2010; Mogomotsi, Sekelemani, and Mogomotsi 2020), it is worth noting that employment in the agriculture industry is largely traditional, meaning that many households rely on agriculture for their livelihoods

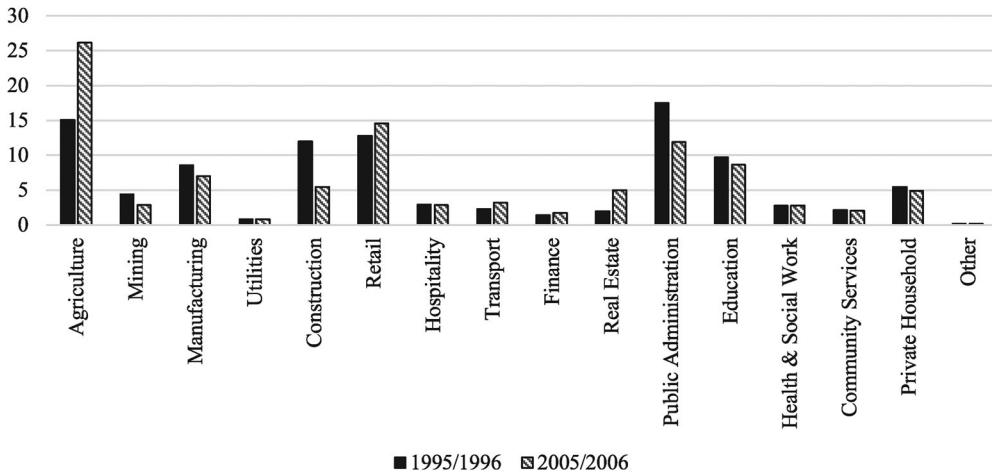


Figure 1. Botswana employment, by industry, 1995/95-2005/06. Source: Malindini and Mackett (2018, 12).

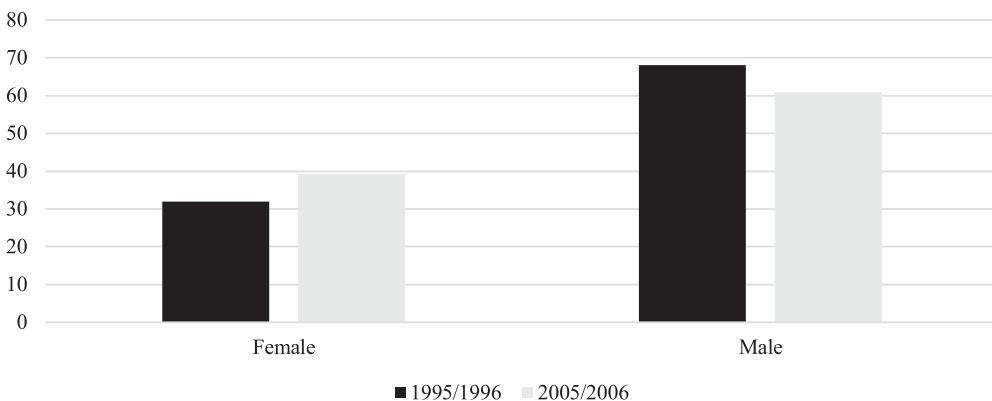


Figure 2. Botswana growth in agricultural employment by gender, 1995/1996 - 2005/2006. Source: Author’s own calculations from 1995/1995 and 2005/1006 Labour Force Survey.

due to the high prevalence of poverty and unemployment in rural areas (Kossoudji and Mueller 1983; Mogomotsi, Sekelemani, and Mogomotsi 2020). In such cases, it would often be households belonging to female farm holders who are most severely affected. However, it has also been noted that many farm holders engage in additional activities in order to supplement incomes earned from subsistence agriculture, particularly through men migrating to urban areas to seek employment (Lekobane and Seleka 2011; Modesto 2016).

3. Methodology

Like many other African and developing countries, a challenge which Botswana faces is a paucity of data. This is evident in the fact that the last wave of its Labour Force Survey was released in 2005, more than a decade ago. However, the government's statistical office has endeavoured to undertake an agricultural survey in an effort to keep a tab on developments in the industry. This not only indicates that the government is committed to keeping the industry viable and a source of employment and survival for many, but also assists the government in designing appropriate interventions, such as the welfare support which is provided in drought years.

In this paper, data extracted from various Botswana Agricultural Survey Reports (collected by Statistics Botswana) were used in a descriptive design to take a closer look at how the demographic profile of agricultural farm holders has changed over time (Statistics Botswana 2011, 2013, 2014, 2015, 2017c).¹ In these reports, a farm holder or agricultural holder, is defined by Statistics Botswana (2014, 152) as "a person who makes the day-to-day decisions for the agricultural holding", and the holder may also delegate such responsibility to someone else. Though the data are not presented in consecutive years, the years for which data were available are included here to study the general trends. The data should thus not be interpreted as a complete time-series² nor as a panel, as they consist of individually sampled cross-sectional units.

The years for which agricultural data were available are 1985–1989, 1995, 1999–2004, 2006, 2008, 2011–2015, and 2017. These data are not available at the microlevel, limiting the scope of data analysis that can be undertaken using these data, although they provide an overview of the sex, age group, and marital status of farm holders over time. These have been identified as important determinants of labour supply decisions of both men and women (Dinkelman and Pirouz 2002; Ranchhod and Dinkelman 2008; Ntuli and Wittenberg 2013).

These data were collected by Technical Assistants who, making use of a questionnaire, collect data on elements such as the characteristics of farm holders, how the land is used, what type of crops are planted on the land, and take an inventory of the livestock (Statistics Botswana 2013). The farms included in the surveys were enumerated using the Housing and Population Census (Statistics Botswana 2013, 2015).

A limitation of these data is that it only allows for a descriptive analysis of farm holders in Botswana, although this is sufficient to meet the objective of this paper. This paper thus provides an overview of the most important trends in the characteristics of farm holders in Botswana – the primary decision makers in the traditional agriculture sector. In the results section which follows, I present data on characteristics of farm holders for periods for which data are available. These are presented by sex and age group (1985–2017), age group disaggregated by gender, and marital status, disaggregated by gender (1995–2017). The age groups used are grouped and presented according to what was available in the various statistical reports.

4. Results

4.1 Agricultural farm holders in Botswana by sex

Figure 3 indicates that the female share of agricultural farm holders has increased since 1985. This growth has periodically decreased, but has displayed a consistent upward trend, at least up until 2014. The growth in female farm holders almost increased as much as 20% from 1985 to 2014. At

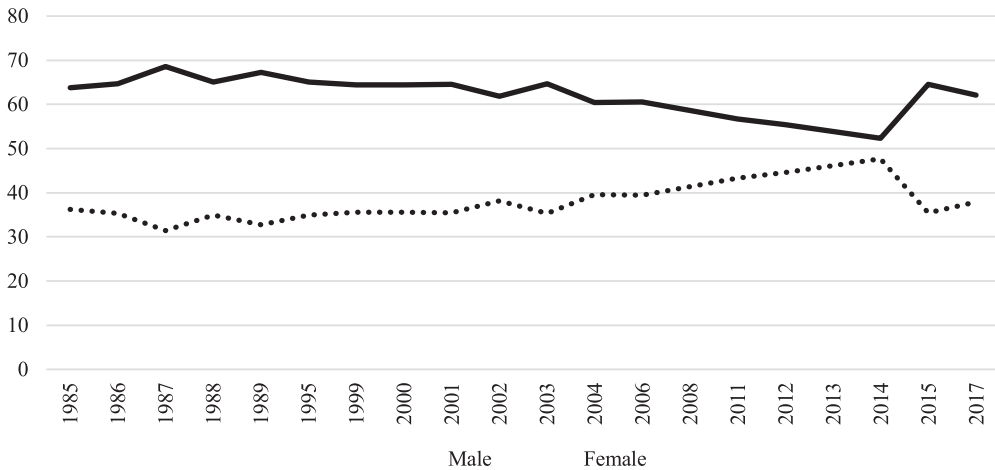


Figure 3. Farm holder by sex (%). Source: Botswana Annual Agricultural Survey Report, various years.

first glance, these data might suggest that Botswana has made great strides towards achieving gender parity in their agriculture sector, although over this period of increased gender parity, the share of women in agriculture periodically decreased over these three decades.

According to Statistics Botswana (2013), 2003 was a year in which some regions were affected by severe drought and others were affected by an outbreak of Foot and Mouth Disease (FMD), in which a large number of cattle was destroyed. According to the Botswana agricultural surveys, 2015 was also declared a drought year (Statistics Botswana 2015), this followed on from 2014, when rainfall was good and farm holders also received subsidies for fertilisers and hybrid seeds from government (Statistics Botswana 2014).

Given this, what is interesting from Figure 3, is that in the aftermath of a crisis, the share of female farm holders seems to increase in relation to males. For instance, between 2003 and 2004 the share of female farm holders increased from 35.2% to 39.6%, while the share of male holders decreased from 64.8% to 60.4%. This indicates that a version of the “added worker effect” likely holds in this industry.

Though the added worker effect refers to the increase of a wife’s labour supply when a husband becomes unemployed to supplement family income (Spletzer 1997; Fernandes and De Felicio 2005), in Botswana’s case, the inverse applies. In times of environmental distress, it seems women are often *pulled into* the agriculture industry, while men are possibly pushed towards alternative forms of work to provide for their families. An alternative explanation would be that women take over from their male counterparts on farms during these difficult times, as has been noted in other countries and industries in which an industry becomes feminised during times of distress (Spletzer 1997; Fernandes and De Felicio 2005).

4.2 Agricultural farm holders in Botswana by age

Taking a closer look at farm holder data by age group (Figure 4), it is clear that agriculture is dominated primarily by the older adult cohort of the population (35–64 years old) and the retired cohort of the population (65 and older), although the shares of these two cohorts move inversely. For instance, from 1985 the retired cohort increased from below 20% to 35.4% in 1999. Over the same period, the older adult cohort decreased from just over 70% in 1985–59% in 1999. Despite movements between these groups, the share of youth holders (34 and under) have remained below 10% since the 1980s. This group would likely be reliant on inheritance or financial resources in order to become farm holders.

Looking at the age of farm holders disaggregated by gender, [Figure 5](#) shows that the majority of male farm holders were between the ages of 35 and 64 years old. Further notable is how the share of farm holders over the age of 65 have increased for males. In the literature it has been noted that most cattle are acquired through inheritance, and [Kossoudji and Mueller \(1983\)](#) and [Modesto \(2016\)](#) have pointed out that asset ownership and growth is often accompanied with the age of the holder and this could be particularly true for male holders, according to [Figure 5](#).

For female holders ([Figure 6](#)), the pattern was fairly similar, with the trends for those between the ages of 35 and 64 and those older than 65 moving in opposite directions. Furthermore, the share of farm holders between the ages of 25 and 34 remained below 8% for the entire period under consideration, while the share of those between the ages of 12 and 24 was marginal.

Notable from all three graphs on age is that agriculture is not an attractive or favourable environment for the youth. Small shares of holders were observed in [Figure 4](#) for those under the age of 35 while these shares were even smaller when the data were disaggregated by gender. As alluded to, in the case of young male holders, this could likely be as a result of the fact that cattle and land are

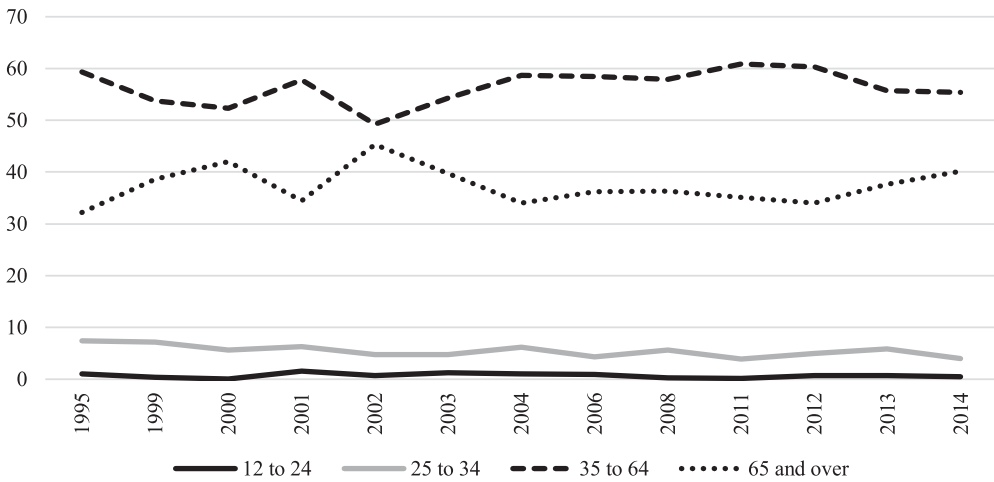


Figure 4. Farm holder by age group (%). Source: Botswana Annual Agricultural Survey Report, various years.

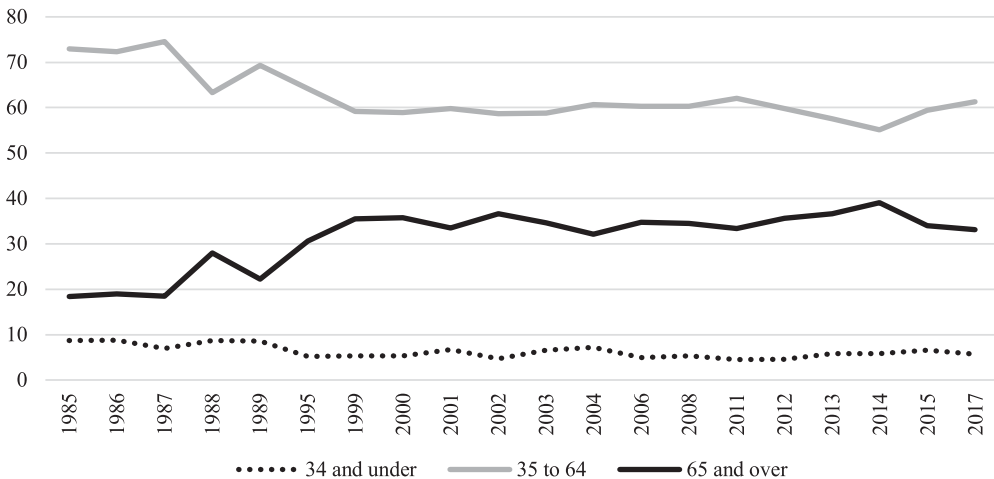


Figure 5. Male farm holder by age group (%). Source: Botswana Annual Agricultural Survey Report, various years.

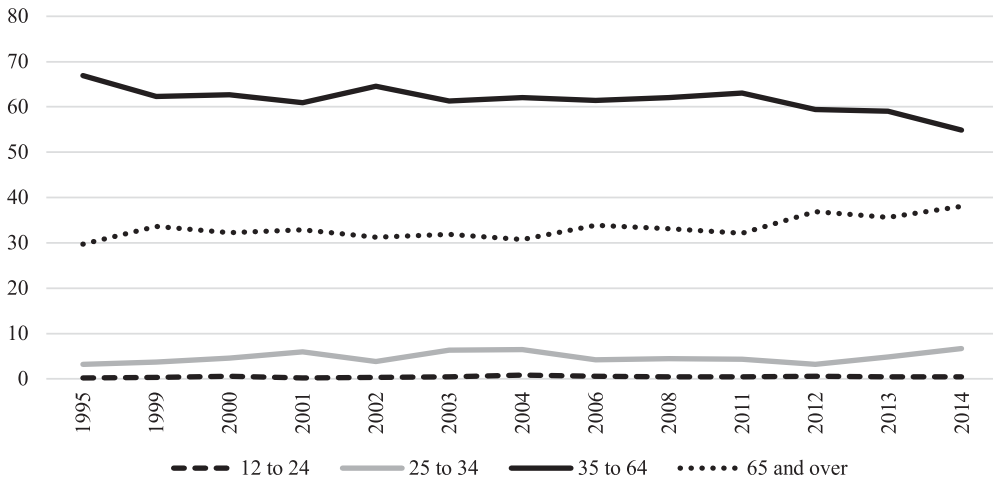


Figure 6. Female farm holder by age group (%). Source: Botswana Annual Agricultural Survey Report, various years.

often inherited or acquired via financial means. Both of these may be difficult for the youth to come by and even more so for women, specifically in a context where they are adversely affected by unemployment.

4.3 Agricultural farm holders in Botswana by marital status

The data on farm holder by marital status showed that in the two periods in which the industry performed poorly (2003 and 2015), there was a decrease in the share of married farm holders. Sharp declines in the share of married holders are seen post the year 2000 and 2003 and another slight decline after 2015. This decline in the share of married holders is accompanied by an increase in the share of never married farm holders who seem to be able to acquire farms when the married individuals move out of the industry, and possibly when the pricing of land becomes more competitive as a result.

Although the shares of widowed and divorced individuals are not as great as the shares of married and never married individuals, the curve for widowed individuals moves in tandem with that of married individuals, while the same is true for the curves of never married and divorced individuals. Though more data are required to draw conclusions about the characteristics of these groups, it is likely that individuals in these marital states (divorced and never married; married and widowed) may accompany similar levels of responsibility towards family and financial capabilities. This may affect their appetite for risk and explain why never married and divorced individuals may be able to increase their shares in farming during times of distress (Figure 7).

The same pattern holds for men, and the shifts in the shares are even more discernible. The share of married male holders decreased from just below 80% in 2003 to below 10% in 2004, while this share increased again in 2014–59.5%. The share of never married males increased as married holders decreased and vice versa, indicating the likelihood of the points made above. This might be even more applicable to males, given societal pressures to be providers for their families.

For female farm holders, there was interestingly an increase in married female farm holders in 2003 with a decrease in married holders in 2014. This curve moves in the opposite direction to the male married holders' curve. Given that males are likely to migrate for work during times of distress, it is likely that wives take over from their husbands as farm holders during such times – displaying a possible added worker effect.

Furthermore, women also had the highest share of farm holders recorded as living together between 2003 and 2014. The contrast between Figures 8 and 9 displays an important gender

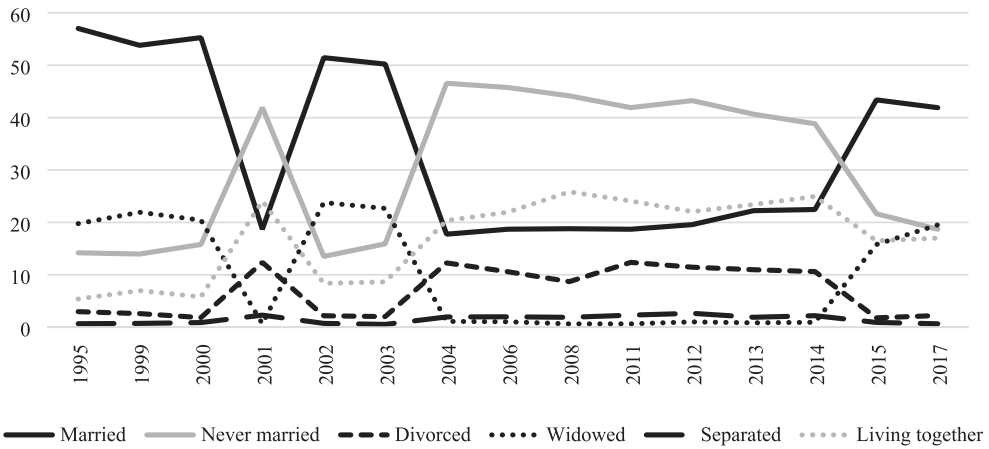


Figure 7. Farm holder by marital status (%). Source: Botswana Annual Agricultural Survey Report, various years.

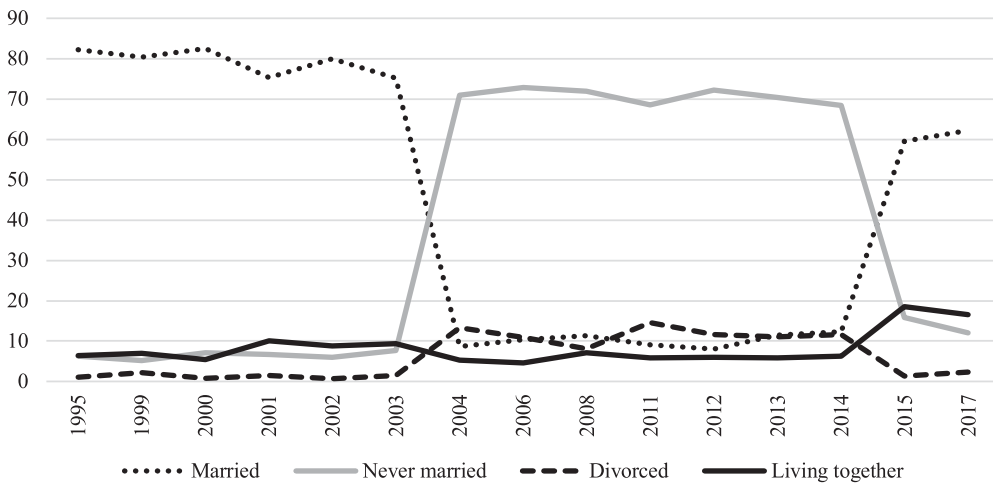


Figure 8. Male farm holder by marital status (%). Source: Botswana Annual Agricultural Survey Report, various years. Note. Widowed and Separated excluded due to small sample size.

difference which is often also evident in labour market studies (Posel and Van Der Stoep 2008; Ntuli and Wittenberg 2013), where women’s labour supply, specifically of married women, are linked to the labour market status of their husbands. This is clear given that married and cohabiting women increase their farm holder share in the aftermath of disastrous years.

5. Discussion and conclusion

Botswana’s agriculture industry has struggled with persistent droughts and disease amongst livestock, and as a result, the government has implemented welfare programmes to assist farm holders during times of distress. Although these welfare programmes are of great assistance to farmers during these times, studies have shown that women often require programmes designed within a gender mainstreaming framework (ILO 2011; FAO 2018). Similarly, households headed by women are often different in composition, consisting of a greater number of younger children as well as older people in need of care (Chant 2007; Rogan 2013). Further to this, in households

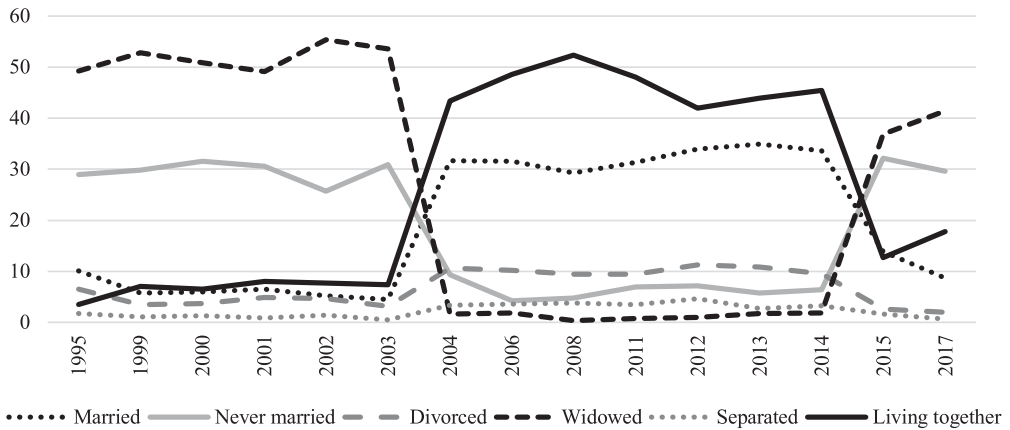


Figure 9. Female farm holder by marital status (%). Source: Botswana Annual Agricultural Survey Report, various years.

where women are the heads, they are often responsible for the financial *and* emotional well-being of the entire household, whereas households headed by males often benefit from the unpaid reproductive labour of women and sometimes even added financial support from employed or self-employed women.

In farming households, this scenario is likely to be even more apparent, as women's contributions are often severely undercounted (Chen, Sebstad, and Connell 1999), and in a country like Botswana where paucity of data is the norm, this problem may be worse. It thus becomes important for the government to know who farm holders are and what the composition of their households are to ensure that programmes implemented to assist such households are as optimally efficient as possible.

The purpose of the study was to investigate how the demographic profile of farmer holders have changed in Botswana over time, using Agricultural Survey Reports. The study found that although the Botswana labour force has moved towards female domination in paid employment, specifically in the agriculture industry, the movements of women as farm holders are still largely dependent on those of men. This is evident in the fact that the share of married male and female farm holders, for instance, move in opposite directions. The data show that women's employment within traditional agriculture in Botswana is possibly contingent on a husband's status in the labour market. Further, it is notable that the industry does not seem to be open to youth, as the same restrictive inheritance rights which have negatively affected the participation of women in the industry historically may have implications for the youth who face additional financial constraints to entering the industry.

Given the hardships which are faced in the industry on a regular basis in relation to drought and disease, and the patterns which were observed in terms of the movement, specifically of women, during such times, it is clear why those most adversely affected by poverty in rural areas are women. The Agricultural Survey data also show that when disaster strikes the agriculture industry, it is the women who step in as farm holders and take over from the men. It is thus vitally important that assistance provided by the government during such times are tailored to the needs of the individuals who are most severely affected during times of distress – women.

Households in which women are the primary breadwinners and decision makers often differ in socioeconomic characteristics and composition, requiring altered assistance programmes in order to fully benefit from such programmes. The earlier example of the ARAP (Seleka 1999) indicates that policies which are often thought to be gender-neutral could be biased towards the needs and characteristics of male farm holders and their households. Similarly, workers are equally affected in times of drought and disease, though the impact thereof could be more severe for female farmers. Programmes which are aimed at providing alternative relief for workers should

also consider the needs and capabilities of female workers. Public works programmes which are labour-intensive, for instance, tend to focus on the capabilities of men, although these are often the only form of relief provided for workers in rural areas (FAO 2018). Given the seasonal nature of women's employment in the agriculture industry and their large numbers within rural communities, it is expected that they would be reliant on these programmes (Ogunlela and Mukhtar 2009; Osabuohien et al. 2019).

Although no causality or inferential conclusions can be drawn with the available data, this paper attempted to open up a debate around the changing nature of traditional farm holders in Botswana, and consequently, gendered social assistance. It has also collated data from the Agricultural Survey Reports to study trends over time, something which has not yet been done in the existing literature. Women have grown their numbers as farm holders *and* farm workers, and national policy should reflect this change.

The data show a clear increase in women's involvement in the agricultural sector, both as farm holders and as agricultural labourers. To avoid incorrectly viewing this as a positive development for women, cognisance must be taken of the danger of changing one variable while leaving others constant. Alkire et al.'s WEAI provides an opportunity to take a more holistic view of the extent to which women's employment in agriculture is in fact empowering for them. The main variable which could be studied, with the use of the available data was the "production" domain, which relates to decision making power on farms. The data show an increase in the share of women who have gained decision making power on farms, although previously discussed literature also highlighted the extent to which women lack accompanying resources. These include finance to cultivate land and acquire additional resources for such cultivation, as well as ownership of said land. Adequate data on the contribution which women make to the sector in their time-use and a lack of leadership capacity, given the traditional view which a vast majority of Botswana still take of women's subordinate role in society, are further obstacles to empowerment.

Although empowerment needs a broader and more comprehensive study, for this paper the lack of data presents a number of limitations. The first being that consecutive years of Agricultural Survey data were not available, and thus smooth trends could not be observed, but a general trend was discernible from the data presented. Secondly, additional waves of the Botswana labour force survey data would also be useful for research purposes, to ensure that policy initiatives are achieving their intended outcomes, and that trends observed are the most *recent* trends. Until these data concerns are addressed, the government will be unable to ensure adequate monitoring and evaluation of the systems put in place to ensure that programmes rolled out are effective (as recommended by FAO (2018)). Furthermore, the gender neutrality of many of the programmes rolled out are unlikely to change without the ability to see the impact of these programmes.

Based on the available data, however, it is recommended that the government consider what social and policy hinderances affect married women in the agriculture industry, and how these could be alleviated. Removing these constraints could empower married women by decreasing the extent to which they are reliant on the labour market status of their husbands. Women will remain vulnerable in the industry if their movement into the industry continues to be a substitute for men during difficult times, and true rural transformation will thus be unlikely if policies are not geared towards the needs of those who are living in rural areas and their households. In addition to the barriers married women face, consideration should also be given to strategies which change perceptions around women's positioning in society, in accordance with recent legislative changes, as well as removing barriers which disallow women from accessing finance for farming. Similarly, attracting young people to the industry would also require thinking more liberally about making funding opportunities available for those who do not have start-up capital.

Lastly, the study demonstrated the extent to which women have gained some decision making power on farms, although the literature has highlighted the importance of land ownership. The government could thus benefit female farmers by considering ways in which female ownership of agricultural land can be accelerated. In addition to the above recommendations which address the

factors which cause the fluctuations of different groups in farm holding, land ownership is key to unlocking access to a broad range of resources; finance being key amongst these. However, land ownership alone will not address the challenges of women in agriculture, a policy framework which supports programmes addressing the hinderances of female farmers in the various physical and institutional arenas they operate in, must accompany ownership of land.

Notes

1. The Agricultural Survey Reports are freely available for download at <https://www.statsbots.org/bw/publication-by-sector/agriculture>. The data in the reports were collated by the author and the consolidated dataset which was used in this study is available at <https://doi.org/10.17632/mw4s25bc62.1>.
2. In its survey documentation, Statistics Botswana (2013, 166) does state, however, that the “main objective of the program [the continuous program of household surveys] is to provide time series [data] of basic information on crop production and livestock population and on related general agricultural data”.

Disclosure statement

No potential conflict of interest was reported by the author.

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