Changes in household composition in South Africa (2002 – 2018) from a gender perspective

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by

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Declaration

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Abstract

This paper assesses patterns and trends of gender differences in household composition and access to resources in South Africa between 2002 and 2018. Instead of using headship, households are identified as female-dominated (all adults are female), male-dominated (all adults are male) or mixed (both female and male adults are present). Using General Household Survey (GHS) data, this study finds that household formation is outpacing population growth and is fastest among male-dominated households, with female-dominated households having the second-fastest rate of household formation. Amongst households that contain adults, mixed households have the lowest rate of household formation, partly explained by declining rates of marriage. The increase in the number of households is driven by the rise of single-person households, and this combined with falling fertility rates explains the observed decline in average household size. Female-dominated households are more economically precarious than both male-dominated and mixed households because they are less likely to report earnings as the main source of income; and compared to male-dominated households, they are larger and more likely to include children. This paper contributes to the literature by providing an assessment of recent patterns and trends in household composition in South Africa. In addition, it demonstrates that an alternative to household identification by headship, gender composition of adults, is useful for tracing gender differences in access to resources.

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1. Introduction

Households play an important role in society. They help fulfil the basic needs of human survival by providing shelter, and they are the basis for the provision of care and resources. Household formation is influenced by economic, institutional and demographic factors, which differ in developed and developing countries (Thornton & Wittenberg, 2019). Membership in households in South Africa is particularly important for the vulnerable in society, who rely on the economic support of other members in their household, in the absence of alternative sources of income. In addition to the above-mentioned factors, household formation in South Africa has also been heavily influenced by circumstances unique to its history: apartheid-era laws disrupted households and families, and in many ways, the resultant migration patterns and living arrangements from that era persist to the present day (Bank et al., 2020; Posel, 2020). The impact of the HIV/AIDS epidemic on adult mortality has also affected household composition. Households in South Africa, and in developing countries in general, are complex, fluid and not often well understood.

Social scientists care about households because they are the basis for measuring social well-being (Wittenberg et al., 2017) and are the "basic units of service delivery" (Statistics South Africa, 2019a, p. viii). The composition of a household has welfare implications for its members. The gender of the household head is often used as a lens through which to study gender differences in access to resources. The literature refers to the "feminisation of poverty", which captures the concentration of income poverty amongst female-headed households. This comes about from women having less favourable labour outcomes than men, and female household heads being less likely to have a spouse than their male counterparts, resulting in female-headed households being less likely to pool income from two sources. However, the concept of headship has been criticised in the literature for a number of reasons, including that it is not a robust category because it is open to interpretation, and it ignores the heterogeneity that exists within male-headed and female-headed households.

This paper analyses how the composition of households has changed in post-apartheid South Africa over a period of almost two decades, from 2002 to 2018, and assesses gender differences in access to resources and economic precarity. Instead of using the lens of household headship, the study follows the approach of Posel & Hall (2021), distinguishing between households that are female-dominated (all adults are female), male-dominated (all adults are male) and mixed

(both female and male adults are present). This departure from headship aims to address criticisms levelled against headship as follows: Firstly, households by adult gender composition are objectively identifiable. The criteria are clear and consistent, and are not open to the interpretation of respondents. Secondly, identifying households in this way accounts for the heterogeneity that exists within female-headed and male-headed households. This is because it separates out female-headed and male-headed households that contain adults of one gender only, from households with both male and female adults. This paper aims to demonstrate that adult gender composition of households is a useful category for tracing gender differences in access to resources.

Key findings from the study are that household formation is outpacing population growth and it is fastest among male-dominated households, with female-dominated households having the second-fastest rate of household formation. Amongst households that contain adults, mixed households have the lowest rate of household formation, which is partly explained by declining rates of marriage. The increase in the number of households is driven by the rise of single-person households, and this combined with declining fertility rates explains the observed decline in average household size. Female-dominated households are more economically precarious than both male-dominated and mixed households (but less so than households with no adults) because they are larger and more likely than male-dominated households to include children; and they are less likely than male-dominated and mixed households to report earnings as the main source of income.

The rest of this paper is structured as follows: Section 2 provides a review of literature on household formation and gender differences in access to resources, contextualised for South Africa. Section 3 outlines the research questions, data and methodology used in this paper. Descriptive analysis of patterns and trends in composition and economic well-being of households between 2002 and 2018 is presented in Section 4. Section 5 builds on the descriptive analysis by focusing on one aspect of economic wellbeing, the experience of hunger, and predicting the extreme vulnerability of households through a multivariate probability model. Section 6 summarises the main findings and concludes the study.

2. Literature review

2.1. Household formation

A household is generally understood to perform two functions: it is a place where household members live together and where members share in the production and consumption of resources that provide essentials for survival (Russell, 2004; Amoateng & Richter, 2007; Fafchamps & Quisumbing, 2007; Hall & Mokomane, 2018). The official statistical agency of South Africa, Statistics South Africa, defines a household as a group of people who "live together and provide themselves jointly with food and/or other essentials for living, or a single person who lives alone" (Statistics South Africa, 2019a, p. 86). When Statistics South Africa conducts a survey interview, a person must have occupied the household dwelling unit for at least four nights a week during the preceding four weeks to be considered a household member (Statistics South Africa, 2019a). However, some surveys allow households to also include non-resident members – people who are considered to be part of the household but who do not live in the household for much of the year. This is discussed further in the next sub-section below.

There are economic, institutional and individual preference factors that drive household formation (Thornton & Wittenberg, 2019). There is a strong link between marriage and household formation, as marriage often results in a new household being formed (Fafchamps & Quisumbing, 2007). Under the conjugal system, a characteristic component of "Western" norms of kinship, it is expected that a newly-married couple will leave their respective childhood homes to form a new independent household (Russell, 2003b). Relatedly, households are also often formed around families. "Family" refers to a group of people who are related through marriage and consanguinity (Fafchamps & Quisumbing, 2007). The concepts of "household" and "family", while distinct, are often conflated due to the assumption that families are nuclear (Hall & Mokomane, 2018). A "Western" household typically consists of members of a conjugal nuclear family (Russell, 2003b). Household formation in South Africa and other developing countries is more complex and dynamic, and non-nuclear forms of households are more prevalent (Chant, 2003; Amoateng et al., 2004; Rogan, 2013). Household formation is also influenced by other factors such as employment and employment seeking (Ermisch & Di Salvo, 1997).

Changes in demography over time also influence household formation. The demographic transition, referring to declines in mortality and fertility, first occurred in Western countries from the 1700-1800s, then in the rest of the world from the mid-twentieth century onwards

(Lesthaeghe, 2010). Characteristics of this so-called first demographic transition (FDT) that influence household formation are increasing proportions of people getting married, declining ages at first marriage, low or declining incidence of cohabitation and the dominance of the nuclear family model (Lesthaeghe, 2014). The end of the FDT (at differing times for countries around the world) was envisioned to encompass a convergence of all households around the world to the nuclear form, and a stable population with fertility at replacement levels (Lesthaeghe, 2007). However, this has not come to be. In many countries, we now observe an increase in types of living arrangements other than the nuclear form, due to decreasing marriage rates and rising ages at first marriage, increases in cohabitation, and increases in single-person households (Lesthaeghe, 2007; 2014). Moreover, fertility rates have declined to such an extent that fertility rates in a range of countries are at sub-replacement levels. These changes have been referred to as the second demographic transition (Van de Kaa & Lesthaeghe, 1986).

2.2. Household formation and composition in South Africa

The concept of the household is not straightforward, and the definition provided earlier in this review can be considered restrictive (Wittenberg et al., 2017). The emphasis on current location of household members, for example, has been criticised by Russell (2003a,b) "for not understanding the complexity of the social connections between people or how people move between households and locations" (Wittenberg et al., 2017, p. 1301). Household membership for individuals can extend beyond one household, and individuals can be considered part of a household even if they spend a considerable part of the year not living in that household (Posel, 2010). This violates the residency component of the household definition used in most household surveys conducted in South Africa.

The institutional context of South Africa must be taken into account when discussing households and families. In contrast to the conjugal system in which Western household formation is rooted, most South Africans "subscribe to a patrilineal kinship system that is based on unilineal descent" (Amoateng & Richter, 2007, p. 13). In other words, familial relations are identified through one's father's family and are defined by one's father's line of descent rather than the mother's. One of the rules under this patrilineal kinship system is that once a woman is married, she moves to live with her husband's patri-kin and becomes legally absorbed into his family (Russell, 2003a). This "gives rise to extended and multigenerational family arrangements linked through the patrilineal line of descent" (Posel & Hall, 2021, p. 2). Because of this patrilineal kinship system, extended type households whose members include family

and individuals other than parent(s) and child(ren), and the elderly (at least three generations) have featured prominently amongst South African households.

Although the share has declined over time, households that include three generations have comprised between 9% and 17% of households over the past twenty years (Posel & Hall, 2021). The elderly play important caregiving roles in households in South Africa, taking care of fostered and orphaned grandchildren, as well as their ill adult children (Schatz, 2007). These caregiving roles are in part attributed to the continuation of the dispersion of families that came about due to apartheid-era laws, and the HIV/AIDS epidemic has likely increased their burden of care in the household (Bigombe & Khadiagala, 2004; Schatz, 2007). Outside of these circumstances, however, culturally, grandparents have been and continue to be seen as playing important parental supportive roles in their grandchildren's lives, particularly in African families (Mtshali, 2015).

Marriage has been regarded as an important institution in Southern Africa historically. It was considered a rite of passage and played an important role in household formation, particularly in the pre-colonial period (Pauli & van Dijk, 2016). Marriage plays a much less significant role in household formation today, due to the current trend of the majority of the Southern African population never marrying (Pauli & van Dijk, 2016). Low marriage rates among the African population in particular were identified prior to the end of apartheid. Preston-Whyte (1978) for example identifies that low rates of marriage combined with high rates of births occurring outside of marriage, led to single parents (mothers) living with their mothers, which resulted in multigenerational households in African communities. High rates of childbearing outside of marriage have also been observed in more recent literature (Budlender & Lund, 2011). Households increasingly do not include a married couple due to marriage rates having declined, particularly amongst African women (Rudwick & Posel, 2013), and a decline from 55% to 37% of households that include a spouse between 1996 and 2011 (Thornton & Wittenberg, 2019).

Convergence theory, proposed by Goode (1963), predicts that as countries develop and modernisation takes place, households transition away from including extended families towards the nuclear form. This theory's applicability to South Africa has been disputed in the literature, and convergence to the nuclear form of the household has not been found to be the case for households in this country. In their study of rural households in South Africa, Wittenberg & Collinson (2007) find no evidence that "Western" style households, namely

nuclear, couple and single-person households, have increased at the expense of extended households, but that extended households have persisted between 1996 and 2003. Using census data covering a similar time period, Amoateng, Heaton & Kalule-Sabiti (2007) find that the share of nuclear households has declined from 46% to 40%, whilst the shares of single-person and extended households have increased. Budlender & Lund (2011) find that the nuclear form is not the norm for households in South Africa. In 2005, only about 35% of households in South Africa conform to the nuclear form of two parents and child(ren). These findings are corroborated and expanded upon by Posel & Hall (2021), who find that the share of households in South Africa with a co-resident heterosexual couple, which also includes nuclear households, has declined from 51% in 1995 to 37% in 2018.

The complexity and dynamism of household formation in South Africa has been studied in the literature with consideration for its unique institutional contexts. Budlender & Lund (2011) for example refer to the "legacy of family disruption" left by South Africa's colonial and apartheid history. Legislation such as the Natives (Urban Areas) Act, the Group Areas Act and pass laws resulted in the forced removals of African, Coloured and Indian people to designated areas, creating homelands (also known as Bantustans) for Africans and restricting their movement. The concentration of employment opportunities in urban areas supported the development of the migrant labour system. As most migrant workers were men, in instances where a man was married with children, he was forced to leave his family behind in their home in the rural area, to work and live in the urban area or in the mines (Keller, 2004; Kalule-Sabiti et al., 2007). Legislation controlling movement between rural and urban areas restricted African families' ability to settle in urban areas. This forced women and children to be left behind in the homelands, maintaining the permanent home for male migrant labourers to return to (Posel, 2001; Posel & Casale, 2006).

The leaving behind of women and children in rural areas caused households to be "stretched" between rural and urban areas (Amoateng, Heaton & Kalule-Sabiti, 2007; Madhavan & Schatz, 2007), and led to an increase in female-headed households (Kalule-Sabiti et al., 2007). Legal restrictions on the ability of African families to settle permanently in urban areas are no longer in place and it was expected that circular or temporary migration would be replaced by permanent settlement at places of employment (Posel, 2004). However, "patterns of internal and oscillating labour migration have endured, and dual or stretched households continue to link urban and rural nodes" (Hall & Posel, 2019, p. 1).

Limited employment opportunities in rural areas still drive people to urban areas (Keller, 2004; Posel et al., 2006), which in turn impacts the nature of household composition and household formation. Labour migration is found to have increased between 1993 and 1999, particularly among women (Posel & Casale, 2003; Posel, 2004). Considering a longer period, Posel (2020) finds an overall decline in labour migration between 1993 and 2015 subject to fluctuations of the economy. This author nonetheless concludes that labour migration (and stretched households) is still a feature of South African life.

The HIV/AIDS epidemic has had a profound effect on households particularly during the late 1990s and the 2000s. HIV/AIDS mortality in adults resulted in households having to adjust their support structures to deal with the consequences of mortality among economically active household members. As mentioned earlier in this section, grandparents have had to take on caring for their grandchildren as a result (Schatz & Ogunmefun, 2007; Sibanda, 2011), increasing the formation of skip-generation households. Another purported consequence of the HIV/AIDS epidemic is the rise in child-headed households. Contrary to concerns raised in the public discourse about the vast and increasing number of child-headed households, however, they are found to constitute less than 1% of the whole population of households and have not grown in prevalence over time (Meintjes et al., 2010).

Households play an important role as a safety net for vulnerable members of South African society (Wittenberg et al., 2017). South Africa faces persistently high levels of poverty and unemployment. While there is an extensive social grants programme, it does not cover the unemployed. Klasen & Woolard (2009) describe household formation responses to unemployment that include individuals remaining in, or returning to, their parental home or the home of other relatives. Similarly, precarious workers depend on households to combine multiple income sources as a livelihood strategy, because the nature of their work is such that it cannot be relied on as a long-term source of income support (Scully, 2016).

Social grants are a key part of the South African government's poverty reduction strategy. They make a significant difference for the poor, as they have been found to decrease the depth of poverty experienced by vulnerable households (Posel & Rogan, 2012). The social grant system has a long history. Having been introduced early in the twentieth century and restricted to the white population, it was later expanded gradually to the rest of the population (Armstrong & Burger, 2009; Budlender & Lund, 2011; Posel & Rogan, 2012). The post-apartheid period has seen a dramatic expansion in the social grant system (Posel, 2014). Between 1996/7 and

2019/20, the number of grant recipients has grown exponentially, from 3 million to just over 18 million (Department of Social Development, 2021). The social grant system currently includes the older persons grant (previously known as the state old-age pension), disability, war veterans, care dependency, foster child, child support, grants in aid and social relief of distress grants.

Two of the most commonly received grants are the child support and older persons grants. The child support grant was introduced in 1996 and rolled out from 1998. Subject to means testing, it started out for those below the age of seven years. From 2003, the eligibility age gradually increased and by 2010, children below 18 years of age became eligible (Eyal & Woolard, 2011). Also subject to means testing, the eligible age for the older persons grant started at 60 years for women and 65 years for men. This was legally changed to 60 for all in 2008, and from 2010 it was rolled out to all persons over the age of 60 (Ranchhod, 2017).

The older persons grant in particular has been found to be a crucial source of income for poor households in South Africa (Burns et al., 2005; Armstrong & Burger, 2009). There is a high take up rate (80%) amongst Coloured and African respondents in the Quarterly Labour Force Surveys between 2010 and 2014 who are eligible (according to age) and do not earn an income (Ranchhod, 2017).

Social grants have also been found to influence household formation. Using 1996 census data, Edmonds et al. (2005) find that when a woman becomes eligible for the social pension, there is an increase in the number of children aged below five years old present in the household. The same study also finds that pension income enables prime-age women to move out of the household to search for work (see also Posel et al., 2006; Budlender & Lund, 2011). Ranchhod (2017) shows that when a household loses income from the older persons grant due to a pensioner's departure, its response is to reduce the number of dependents. The household also responds by increasing the number of potential caregivers and the proportion of adults engaged in income generating activities.

Between 2002 and 2018, the South African population grew by 1.3% per annum while the number of households increased by 2.4% per annum (Statistics South Africa, 2019b). South Africans are forming households at a rapid rate and the outpacing of population growth by household formation is a trend that has also been observed globally (United Nations, 2017). Average household size in South Africa has declined from 4.5 persons in 1996 (Amoateng et al., 2004) to 3.4 persons in 2016 (United Nations, 2019). Declining rates of fertility and a rise

in single-person households are contributing factors to the observed decline in average household size. Between 1995 and 2018, the share of households that contain children has declined from 67% to 51%, while the share of single-person households has increased from 12% to 26% (Posel & Hall, 2021).

2.3. Gender differences in access to resources and economic precarity

As mentioned earlier in this review, the composition of a household has welfare implications for its members. This section provides a review of some of the literature on the differences in households' access to resources by gender.

The study of poverty in developing countries has often found an association between poverty and female-headed households (Buvinić & Gupta, 1997; Lampietti & Stalker, 2000), suggesting that households headed by women are more vulnerable to poverty on average (Posel & Rogan, 2012). These findings are used to describe the "feminisation of poverty", referring to the concentration of poverty amongst female-headed households, which is partly attributed to less favourable labour outcomes for women.

There has been a "feminisation of the labour force" since the advent of democracy in South Africa (Casale & Posel, 2002). The share of women in the labour force increased from 38% in 1995 to 49% in 2005 (Casale & Posel, 2002; Van der Westhuizen et al., 2007), and the female share of the employed increased from 39% in 1995 to 43% in 2007 (Posel, 2014). However, the rise in labour supply amongst women exceeded the rise in employment, and unemployment rates amongst women rose substantially over that period (Posel, 2014). Subsequent to 2007, unemployment rates among women have continued to exceed the unemployment rate among men (Casale et al., 2020). Moreover, growth in low-paying, unskilled jobs with limited advancement opportunities accounted for more of the increase in women's employment than other types of jobs in the first decade of democracy (Budlender & Lund, 2011; Casale & Posel, 2005). The returns to work remain lower for women than men (Budlender & Lund, 2011). While the gender earnings gap has decreased over time, it has nonetheless persisted (Posel, 2014; Casale et al., 2020). Households identified as female-headed are more vulnerable to poverty than male-headed households as a result of higher rates of unemployment and lower earnings among women. Households identified as male-headed have been found more likely to have higher income through two mechanisms. Firstly, men earn higher wages than women. Secondly, male household heads are more likely to have a spouse than female household heads

(Rogan, 2011; Thornton & Wittenberg, 2019), which increases the likelihood of male-headed households having joint income from two sources.

In their study of poverty trends in the post-apartheid period, Bhorat & van der Westhuizen (2008) find that household poverty in South Africa (using the headcount rate at a poverty line of R322 per month in 2000 prices) declined from 53% to 48%, between 1995 and 2005. Posel & Rogan (2012) study a similar time period, and find that poverty rates overall (based on various measures of economic resources) have decreased from 1997 to 2006; but they also find that poverty rates have fallen by a larger degree among male-headed than female-headed households. These authors importantly note that the large-scale rollout of social grants has had a significant impact on household wellbeing: without grants, poverty incidence would have been higher overall (Posel & Rogan, 2012). Social grants have been found particularly valuable to female-headed households, contributing more to the reduction in poverty measures in female-headed than male-headed households, thus narrowing the poverty gap between these households (Posel & Rogan, 2012). Nonetheless, female-headed households remain comparatively more vulnerable than male-headed households, despite declining trends in poverty rates.

Female-headed households are used as a lens to study gender differences in poverty, and are often targeted in poverty reduction strategies (Sender, 2003). This targeting arises from discourse around the feminisation of poverty which suggests that female-headed households are in need of intervention because they are the "poorest of the poor" (Momsen, 2002; Chant, 2003). The concept of headship, however, has been contested in the literature for a number of reasons, including that it is defined differently in different contexts (Budlender, 2003), and it is often arbitrary and left to household survey respondents to decide themselves who or what constitutes a household head (Posel, 2001; Budlender, 2005). While it is most commonly understood that a household head is the main breadwinner and main decision maker in the household, these characteristics may not be encompassed by the same person. Household members may have different views on who plays these roles or they may have different definitions of headship altogether (Budlender & Lund, 2011). This results in inconsistencies across households in what a household head represents. The household head is also often assumed to be the most knowledgeable about household activities and representative of the household's interests, therefore they are the point of reference for surveys (O'Laughlin, 1999). However, this may not always be the case and data collected from the household head may not be a true representation of the household's state of affairs.

Further criticisms of headship are that it does not account for the heterogeneity among male- and female-headed households (Chant, 2003; Schatz et al., 2011), and it presumes that there is a single head, thus ruling out the possibility of joint decision making (Moultrie & Timaeus, 2001). Rogan (2013) succinctly states that differences between female- and male-headed households' poverty rates cannot be attributed to gender differences in access to resources if there is no relation between the dimensions of poverty and the elements of what constitutes a household head.

Budlender & Lund (2011) point out that many women who are primarily responsible for financial support and caregiving of children are not the household head. For instance, a grandmother in the household will most likely be the household head on the basis of her age. Similarly, if the mother caring for her children lives with her father, he will be the household head. Moreover, it cannot be inferred that women living apart from the father of their young child(ren) are raising them on their own. It follows then that policy focusing on female-headed households would be poorly targeted and would not be of much benefit to women in the vulnerable positions described above (Budlender & Lund, 2011).

2.4. Contribution to literature

This paper aims to contribute to the literature by studying gender differences in access to resources using gender composition of adults in the household, following from, and building on, the approach of Posel & Hall (2021), as opposed to using the lens of headship. This approach identifies the gender of adults in a household, categorising households as female-dominated, male-dominated or mixed (with the "residual" category of households with no adults). Households classified by adult gender composition are objectively identifiable and are not subject to the issues surrounding the concept of headship. This paper aims to assess whether there have been changes in the extent and characteristics of female-dominated households in South Africa, and how their socio-economic status compares to male-dominated and mixed households. The study of female-dominated households, particularly over a more recent time period, provides an updated perspective to the current literature on household formation, and gender differences in access to resources and economic precarity in South Africa. The study builds on the work by Posel & Hall (2021) by using econometric methods to investigate the source of gender differences in access to resources across the household types.

3. Data and methodology

3.1. Definitions

For the purposes of the research conducted in this paper, the terms listed below will be used to distinguish households by adult gender composition, and are defined as follows:

- *Female-dominated household* – a household in which there are no adult males, i.e., no males 18 years of age and older are resident.
- *Male-dominated household* – a household in which there are no adult females, i.e., no females 18 years of age and older are resident.
- *Mixed household* – a household in which both male and female adults are resident.
- *No-adult/ child-only household* – a household in which all residents are below the age of 18, i.e., all residents are children.

3.2. Research questions

This study aims to investigate how households in South Africa have changed over time, with a focus on gender differences in household composition, access to resources and economic precarity. The specific research questions investigated are:

1. Have female-dominated households become more prevalent in recent decades?
2. Other than the gender of adults, do female-dominated households have additional distinguishing features of household composition?
3. Does the economic status of female-dominated households differ to the economic status of other household types? In particular, are female-dominated households more economically precarious (as measured by the incidence of hunger)?
4. How are the characteristics of the different household types associated with their economic precarity?

3.3. Data: General Household Survey (GHS)

This paper makes use of the General Household Survey (GHS) collected by Statistics South Africa. The GHS is conducted on an annual basis; having commenced in 2002, it is a successor of the October Household Survey that was conducted from 1993 to 1999. It aims to track the progress of development in South Africa and it covers six broad areas: education, health and social development, housing, households' access to facilities and services, food security and

agriculture (Statistics South Africa, 2019a). Information covered includes individual demographic and household information, and basic labour market data.

The GHS is cross-sectional and nationally representative, and uses a two-stage stratified sampling design. It draws from a Master Sample of enumerator areas used during the census (from 2002 to 2014 – 2001 census; from 2015 to present – 2011 census), with primary sampling units selected at the first stage and dwelling units sampled at the second stage (Statistics South Africa, 2019a). The sample is then stratified by geography (primary stratification) and by population attributes (secondary stratification) using census data (Statistics South Africa, 2019a), resulting in approximately 30 000 households and 100 000 individuals being in the sample. Sampling weights are constructed such that the data are representative of South Africa's entire civilian population (Statistics South Africa, 2019b). These weights are used throughout the descriptive and regression analysis conducted in this paper to generate national-level estimates that are representative of the population.[1] Data are collected by enumerators, as self-reported by respondents or through a proxy.

In this study, GHS data between 2002 and 2018 are used, specifically the 2002, 2006, 2010, 2014 and 2018 datasets. The methodology includes a descriptive analysis of changes over time (trends) and patterns in household composition and access to resources among female-dominated, male-dominated and mixed households, as well as the "residual" category of households with no adults. A key objective of this analysis is to compare the differences in household composition and access to resources amongst these household types and track how these differences have changed from 2002 to 2018. Comparisons are also drawn by race and geographical area (urban vs rural). To augment the descriptive analysis, econometric techniques (detailed below) are used to explore differences in extreme vulnerability across different household types.

The GHS data cover a large sample and contain a wide range of variables that makes it possible to answer the research questions posited above. With the GHS survey having been conducted annually since 2002, it is possible to identify trends over a long period of almost twenty years, using an instrument that has been mostly unchanged. However, there are also limitations with the GHS data. These include households consisting of only resident members, limited money-metric data, and the inconsistency over time in questions relating to asset ownership, sources

[1] This is with the exception of household socio-economic status analysis, which looks at the distribution and ranking of households' socio-economic status. Sampling weights are not used in the construction of histograms for this analysis.

of income and socio-economic status. These limitations are discussed further below where they pertain to specific components of the analysis.

3.4. Descriptive analysis

3.4.1. Household composition

The first part of the research entails identifying how the incidence of different households by adult gender composition and headship has changed over time, determining which household types have become more dominant from 2002 to 2018. Descriptive analysis of household composition (household size, number of children, presence of pensioner(s) and children, and the number of generations) for the whole population of households and by household type is then conducted. This identifies the differences in household composition of the different households grouped by adult gender composition, and whether these have changed over the period analysed.

Household size constitutes the total number of resident household members, while the number of children in the household equals the total number of household members aged below 18 years. A "pensioner containing" household is one in which there is at least one household member aged 60 years old or above and a "child containing" household is one where there is at least one household member aged below 18 years. A limitation of the GHS is that only resident household members (persons who at the time of the survey, had stayed in the household for at least four nights per week on average over the past four weeks) are accounted for. Non-resident members are not accounted for; therefore, it is not possible to identify households with members who spend most of their time living elsewhere. Households with non-resident members are referred to as "stretched" because they extend beyond the dwelling unit being surveyed. As discussed in the literature review, this type of household was common during the apartheid era and has persisted in the post-apartheid period (Posel & Casale, 2003; Wittenberg & Collinson, 2007; Posel, 2020).

The age of household members is used to approximate the number of generations resident in the household. Similar to adult gender composition of the household, using age is an objective means to identify generations and the nature of relationships amongst household members. [2]

[2] While the GHS contains a question that provides details of a respondent's relationship to the household head (for example, spouse, child, parent, grandparent, not related, etc), this relies on the notion of the household head. As discussed earlier in this paper, the notion of a household head is contested in the literature for a number of reasons. It is also not applicable to the household typology – household adult gender composition – used for this paper.

Households are identified as “single person”, “two-generation”, “three-generation” and “skip-generation” as shown in Table 1 below.

Table 1: Household typology

Type	**Household members**
Single person	one person only
Two-generation	child(ren) and adult(s); or adult(s) and pensioner(s)
Three generation	child(ren), adult(s) and pensioner(s)
Skip-generation	child(ren) and pensioner(s)

3.4.2. Household-level measures of access to resources

Income and expenditure data collected from household surveys are often subject to measurement and non-response errors, particularly in developing countries (Meyer et al., 2015; Burger et al., 2016). While a number of imputations could be made to correct for measurement error, this is of limited use if one is concerned with measuring poverty or inequality. This is because these imputations not only eliminate the measurement error, they can also eliminate the actual variation that exists between households (Deaton, 2003). This would lead to inaccuracies in the levels of poverty and inequality among the household types that this study attempts to measure. An additional challenge in using money-metric measures, insofar as they are accurate, is that they are difficult to adjust to take into account how resources are distributed within the household. Money-metric measures which capture per capita access to resources in the household also assume there are no economies of scale in household consumption (Hentschel & Lanjouw, 1996; Woolard & Leibbrandt, 1999) and it is difficult to adjust these measures to account for the possibility that people can live together more cheaply than apart. As a result of these limitations, this study uses measures of household access to resources that are based on non-monetary metrics.

Survey respondents are asked to indicate whether salaries/wages/commission, income from a business, remittances, pensions, grants (including the state old-age grant), sales of farm products and services, or other income is the household’s main source of income; or whether the household has no income source. Minor inconsistencies in this question are that from 2002 to 2006, pensions and grants are grouped together as a possible response, and commission and income from a business are not accounted for; whereas from 2010 to 2018, pensions and grants are accounted for separately, and commission and income from a business are both included as response options. However, this does not place a significant limitation on assessing the main

sources of income. The classification of main household income sources is standardised across all years as earnings (salaries, wages, commission or income from a business); remittances; pensions and grants; other sources of income (sales of farming products and services, rental income, etc) and unspecified (no income or missing). Assessing the main source of income by household adult gender composition reveals gender differences in sources of income relied upon.

Subjective and objective measures of household socio-economic status, namely self-reported economic status of the household and asset ownership (used as a broad indicator of wealth) respectively, are assessed by adult gender composition to identify gender differences in socio-economic status. Over the period of review for this study, household economic status is only reported in the 2014 and 2018 GHS questionnaires, where respondents are asked to identify whether their household is wealthy, very comfortable, reasonably comfortable, just getting along, poor, very poor. For this study, these six ordinal responses are collapsed into three responses, namely: wealthy/very comfortable, reasonably comfortable/just getting along, and poor/very poor. The distribution of female-dominated, male-dominated and mixed households amongst these self-reported wealth categories provides a subjective measure of household gender differences in socio-economic status.

For asset ownership, a wealth index is constructed by principal component analysis using reported ownership of various assets by households. The underlying rationale is that asset ownership provides an effective indication of a household's longer-term socio-economic status (McKenzie, 2005; Howe et al., 2008), i.e. its stock of wealth. The assets that are selected for inclusion in the wealth index need to be able to distinguish between "relatively poor" and "relatively wealthy" households – if too few or too many households own a specific asset, then that asset is not helpful for distinguishing between the richer or poorer households and thus should not be included in the index (Hjelm et al., 2017). In line with the approach provided by the World Food Programme's (WFP) guidelines on constructing a wealth index, assets owned by more than 95% or less than 5% of households in a given year must be excluded. To assess how asset ownership has changed over time, the same assets need to be used for construction of the wealth index every year.

There is large variation in the scope of assets included in the GHS instruments over the years. Using the WFP guidelines, this leaves only three assets that can be used to construct a wealth index for all years of this study (2002, 2006, 2010, 2014, and 2018). While there is no rule of

thumb *per se* on the number of assets that should be included in a wealth index, a high-level review of guidelines and literature using asset indices shows that three assets may be insufficient. In the WFP guidelines cited above, nine assets are used in an illustrative example for constructing an index. The 2016 Demographic and Health Survey (DHS) report for South Africa uses 17 assets to construct a wealth index (National Department of Health (NDoH et al., 2016). Bhorat et al. (2006) use ten variables to construct an asset index for their assessment of non-income welfare in South Africa. In their assessment of poverty trends among countries in Sub-Saharan Africa, Booysen et al. (2008) construct a wealth index using variables that appear across all questionnaires in their data sample to ensure cross-country and time comparability. Seven variables fit this criteria and are used to construct a wealth index, which they note is a "relatively small" number (Booysen et al., 2008:4-5). In the context of this study, this indicates that using three assets for a wealth index may be too few.

In 2014 and 2018, the list of assets asked is most comprehensive and consistent, thus wealth indices are constructed only for these years. The 20 assets used to construct the 2014 and 2018 household wealth indices are: radio, television, landline telephone, car, fridge, pool, DVD player, pay TV, computer/personal computer/desktop/laptop, vacuum cleaner, washing machine, dish washer, tumble dryer, freezer, electric stove, microwave, built-in kitchen sink, home security system, home theatre system and geyser. The wealth indices are used to rank the population of households in the sample into terciles: low, middle and high levels of wealth – "poorest", "middle" and "richest" households. The shares of female-dominated, male-dominated and mixed households that lie within each tercile identify objective gender differences in household socio-economic status.

Measures of household socio-economic status are therefore only reported for 2014 and 2018 due to the reasons outlined above. This presents a limitation to this study in that longer-term trends of socio-economic status by household adult composition cannot be observed. These variables are, however, still useful for shedding light on the extent to which a household's own perception differs from its socio-economic status according to the wealth index.

The GHS asks separately whether any adult or child in the household has gone hungry in the past 12 months due to insufficient food, with the possible responses being "never", "seldom", "sometimes", "often", or "always". Where the extent of a household's food insecurity results in experience of hunger, that household is considered extremely vulnerable (Hendriks, 2005). Incidence of hunger in the household is therefore used as a measure of extreme vulnerability.

A binary variable for experience of hunger in the household is created, where it equals 1 if no one in the household has experienced hunger (i.e., all responses for whether an adult or child went hungry are "never" within a household) and 0 if there has been some experience of hunger (i.e., there are "seldom", "sometimes", "often" or "always" responses amongst children and/or adults in a household). Comparing differences in experience of hunger between households grouped by adult gender composition provides a measure of gender differences in extreme vulnerability and therefore of gender differences in (lack of) access to resources.

3.5. Multivariate analysis of gender differences in extreme vulnerability

The descriptive analysis outlined above is supplemented by multivariate analysis, where probit regression analysis is used to estimate extreme vulnerability of each household grouped by adult gender composition. The objective of the estimations is to determine whether controlling for the demographic characteristics of female-dominated, male-dominated, mixed and no-adult households accounts for any differences in extreme vulnerability that are observed from the descriptive analysis.

Changing ordinal responses into binary responses (which has been done for this study), results in information being "thrown away" (Wooldridge, 2012, p.684). However, this is necessary for the assessment of hunger in the household overall, as it is difficult to determine where on the five-point ordinal scale a household would fall if both adults and children in that household experience some form of hunger. For example, if a child has "sometimes" gone hungry while an adult has "often" gone hungry, a call cannot be made as to where on the ordinal scale of responses a household's experience of hunger lies. This necessitates the creation of a binary variable for the experience of hunger in the household, and it follows that a probit model should be used.

The probit equation has the following specification:

$$Pr(Y_i=1|\mathbf{x}) = G(\delta_0 + \delta_1 X_{i1} + \delta_2 X_{i2} + \delta_3 X_{i3} + \boldsymbol{\gamma}\mathbf{Z})$$

$$Y_i = \delta_0 + \delta_1 X_{i1} + \delta_2 X_{i2} + \delta_3 X_{i3} + \boldsymbol{\gamma}\mathbf{Z} + \mu_i$$

Where:

G is the normal cumulative distribution function;

Y = 1 for no hunger in the household and = 0 for some experience of hunger in the household;

X_1 is a binary variable for male-dominated household;

X_2 is a binary variable for mixed household;

X_3 is a binary variable for no-adult household (therefore the omitted category, female-dominated household, is the baseline);

Z is a vector of explanatory variables for household demographic characteristics and economic access to resources; and

μ is the error term.

The first specification of the model includes only households grouped by adult gender composition as the explanatory variables. Subsequent specifications of the model then control for geographic location and race; household composition and economic access to resources. Household composition refers to size, number of children and pensioner presence in the household. Economic access to resources refers to main source of income, self-reported economic status and wealth of the household. Taken together, the model specifications assess whether these characteristics change the estimated relationship between household adult gender composition and extreme vulnerability. The model does not explicitly control for household type, i.e., single-person, two-generation, three-generation or skip-generation, as this is highly correlated with household size, number of children and presence of pensioner/s, and would result in multicollinearity in the regression model. Controlling for the latter list of variables rather than household type allows for a more intuitive interpretation of how household composition impacts the experience of hunger in the household.

Per-capita household income or expenditure of male- and female-headed households is often used to assess gender differences in poverty incidence and access to resources. This comparison by gender of the head obscures gender differences in access to resources within the household because adults of both genders may be present in both types of households. While this problem would be addressed by grouping households by gender composition of adults, the problematic assumption of pooling and equal sharing of resources amongst household members remains. Using experience of hunger as a measure of extreme vulnerability overcomes this remaining problem by not making any assumptions about how resources in the household are shared amongst household members.

4. Descriptive analysis

4.1. General trends in the number and composition of households

On a global scale, household formation is outpacing population growth (United Nations, 2017) and South Africa is following this trend as depicted in Table 2 below. Between 2002 and 2018, the population is estimated to have grown by 25%; however, the increase in the number of households over this period is 54%; more than double the population growth rate. This increase in the number of households coincides with a 13% fall in average household size from 3.7 in 2002 to 3.2 in 2018.

Between 2002 and 2018, the average number of children in the household has steadily declined from 1.4 to 1.1, and amongst households that contain at least one child, the average number of children has decreased from 2.5 to 2.2. This is accompanied by a fall in the share of households that contain at least one child from 58% to 51%. The observed decline in the average number of children and the share of child-containing households partially accounts for the fall in average household size. Fertility rates in South Africa have been on a downward trend since the 1960s (Swartz, 2009; Burger et al., 2012). Several factors have contributed to declining fertility rates, referred to in demographic studies as "the fertility transition". These include increased educational attainment among women, increased accessibility of contraceptives, and urbanisation (Moultrie & Timæus, 2003; Palamuleni et al., 2007; Biney et al., 2021). Urbanisation is observed in this study with the share of households in urban areas increasing from 62% to 70%. The share of households that contain at least one pensioner has largely remained stable at 20% to 21% between 2002 and 2018.

Considering household type, i.e., single-person, two-generation, three-generation and skip-generation, the former is the only type whose share among all households has increased: single-person households constituted 21% of households in 2002, increasing to 26% in 2018. In addition to lower fertility rates, the rise in single-person households is also a driver of the observed fall in average household size. The decrease in the share of two-generation households is reflective of the decline in nuclear-type households observed in the literature on households in South Africa (Chant, 2003; Amoateng et al., 2004; Rogan, 2013). The share of three-generation households has declined from 11% to 9%, reflecting a fall in the formation of extended-type households. Skip-generation households are often associated with the HIV/AIDS epidemic in South Africa, which rose rapidly in the late 1990s to the mid-2000s,

and remains the biggest in the world relative to the HIV/AIDS epidemics in other countries (UNAIDS, 2019). This placed the burden of care for children on their grandparents as parents succumbed to the disease. Skip generation households, most of which are located in rural areas (67% to 78%), can also be attributed to labour migration, where parents leave their children behind with their own parents in rural areas while they search for work in urban areas (Ardington et al., 2009; Hall & Posel, 2018). This household type has remained a largely unchanged share of all households, accounting for 1.4% of households in 2002 and 1.3% in 2018.

Most households are located in urban areas; and over time, the share of households in urban areas has increased from 62% to 70%, reflective of the urbanisation process and rural-to-urban migration. The vast majority of households are African[3], and the share of African households increases from 75% to 81% while all other race groups experience a declining share of households between 2002 and 2018.

[3] The race of the household is identified by the race of the self-reported household head, i.e. race of the household head is used as a proxy for race of the household.

Table 2: Number, size, composition, geographic area and race distribution of households

	2002	2006	2010	2014	2018
South African population (millions)	45.81	48.20	50.80	53.90	57.46
Number of households (millions)	10.81	12.11	13.73	14.90	16.67
Average household size	3.71	3.43	3.52	3.39	3.23
	(0.019)	(0.019)	(0.017)	(0.017)	(0.015)
Average number of children	1.44	1.25	1.29	1.21	1.12
	(0.013)	(0.012)	(0.011)	(0.012)	(0.010)
% that include child/ren	58.43	54.44	55.96	53.48	51.19
	(0.404)	(0.457)	(0.397)	(0.410)	(0.372)
% that include pensioner/s	20.73	19.94	21.31	21.30	21.18
	(0.293)	(0.330)	(0.295)	(0.283)	(0.277)
Single-person households (%)	21.47	23.48	18.25	23.55	25.66
	(0.346)	(0.414)	(0.327)	(0.370)	(0.332)
Includes 2 generations (%)	49.68	47.45	48.76	47.30	45.91
	(0.401)	(0.449)	(0.393)	(0.406)	(0.370)
Includes 3 generations (%)	10.96	9.51	10.09	9.70	9.08
	(0.207)	(0.217)	(0.191)	(0.186)	(0.184)
Skip-generation (%)	1.43	1.34	1.49	1.23	1.29
	(0.082)	(0.069)	(0.070)	(0.059)	(0.066)
Share located in urban area (%)	61.85	68.80	67.08	68.90	69.89
Share located in rural area (%)	38.15	31.20	32.92	31.10	30.11
	(0.375)	(0.363)	(0.339)	(0.340)	(0.323)
Total	100	100	100	100	100
African (%)	74.68	76.39	78.30	79.21	80.94
	(0.370)	(0.424)	(0.355)	(0.326)	(0.312)
Coloured (%)	8.00	7.79	7.51	7.52	7.14
	(0.187)	(0.231)	(0.175)	(0.171)	(0.185)
Indian/Asian (%)	2.56	2.51	2.42	2.49	2.43
	(0.121)	(0.157)	(0.125)	(0.138)	(0.129)
White (%)	14.77	13.31	11.77	10.78	9.49
	(0.337)	(0.376)	(0.320)	(0.270)	(0.251)
Total	100	100	100	100	100

Source: Own estimates using 2002, 2006, 2010, 2014 and 2018 GHS

Notes: 1. The data have been weighted to be representative of population estimates. | 2. Standard errors are shown in parentheses

4.2. Trends in households classified by the gender composition of adults

Regarding household formation by men and women, Thornton & Wittenberg (2019) find that from 1996 to 2011, both genders have increased the rate at which they form households, but the increase in the rate of household formation is greater among women than among men. As shown in Table 3, a similar trend is observed in this study between 2002 and 2018 for households by self-reported headship, but not for households grouped by gender composition of adults. The number of female-headed households increases by 60% compared to the 50%

growth rate in male-headed households. However, female-dominated households only grow by 56% compared to the high growth rate of 92% in male-dominated households, both exceeding the overall rate of household formation. The increase in female- and male-dominated households is driven by a rise in single-person households, particularly amongst the latter. This is discussed in more detail in the sections below which focus on each household grouped by adult gender composition.

The results in Table 3 show that the method of household identification changes how gender differences in household formation are reported. The difference in findings between headship trends and trends by adult gender composition arises because the identification method used in this paper (i.e., adult gender composition) also distinguishes mixed households, whereas these households would be incorporated into female- or male-headed households in the standard classification (typically into male-headed households).[4]

Mixed households have grown by 43% between 2002 and 2018, the lowest growth rate amongst households which contain adults and lower than the overall growth rate in households. Mixed households include households with co-resident heterosexual couples. Falling marriage rates, accompanied by cohabitation rates which have risen, but not sufficiently to offset the fall in marriage rates (Rudwick & Posel, 2013), explain why the growth rate is low compared to those of female- and male-dominated households. Households with no adults (i.e., child-only households) have declined by 29% and constitute the smallest share of households. There has been concern in the public discourse about child-headed households that have arisen due to AIDS-related mortality amongst adults in the midst of South Africa's HIV/AIDS epidemic (Richter & Desmond, 2008; Meintjes et al., 2010). However, child-only households are not as prevalent as they have been made out to be (discussed later in this section).

[4] For example, in 2002, 70% of mixed households are self-reported as male-headed. In 2018, 65% of mixed households are male-headed.

Table 3: Growth rates in households by headship vs adult gender composition, 2002 to 2018

Households	2002		2018		Growth rate
	Millions	Share	Millions	Share	
Total	10.81		16.67		54.15%
Female-headed	4.32	39.98%	6.93	41.59%	60.35%
	(0.053)		(0.075)		
Male-headed	6.49	60.02%	9.74	58.41%	50.03%
	(0.064)		(0.088)		
Female-dominated	2.67	24.73%	4.17	25.04%	56.11%
	(0.044)		(0.061)		
Male-dominated	1.85	17.15%	3.57	21.40%	92.42%
	(0.037)		(0.057)		
Mixed	6.21	57.45%	8.88	53.25%	42.88%
	(0.060)		(0.083)		
No adults	0.07	0.68%	0.05	0.31%	-29.49%
	(0.007)		(0.007)		

Source: Own estimates using 2002 and 2018 GHS

Notes: 1. The data have been weighted to be representative of population estimates | 2. Standard errors are shown in parentheses

4.2.1. Female- and male-dominated households

Table 4 below shows that on average, female-dominated households are significantly larger and significantly more likely than male-dominated households to include children. Following the general trend of falling household size, female-dominated households have also become smaller. In the midst of falling fertility rates, the average number of children in female-dominated households, and the share of female-dominated households that include at least one child, have declined between 2002 and 2018, from 1.6 to 1.3 and from 61% to 59% respectively. The average size of male-dominated households has remained below 1.5 and has also fallen over the period, with the average number of children in a male-dominated household declining steadily over time from 0.2 to 0.1. Female-dominated households are also much more likely than male-dominated households to contain a pensioner: 20% to 23% female-dominated households include a pensioner compared to 7% to 8% of male-dominated households.

The larger size and higher likelihood of female-dominated households including children and pensioners can be attributed to the fact that most of these households include two generations. Contrastingly, the vast majority of male-dominated households (75% to 80%) are single-person households, which also explains why average size of male-dominated households never exceeds 1.5. Extended-type (three-generation) and skip-generation households are far more prominent amongst female-dominated than male-dominated households.

Female-dominated households' share of all households has remained largely unchanged over time, remaining between 24% and 25%, while male-dominated households have become more prominent, with their share of all households increasing from 17% to 21% between 2002 and 2018. The increasing prevalence of single-person households characterises the higher rate of household formation amongst male-dominated households than female-dominated households.

A rise in single-person households prior to 2002 has also been observed in the literature. In their analysis of 1996 and 2001 census data, Amoateng et al. (2007) find that the share of single-person households in South Africa increased from 16% to 21% in that five-year period. Mutanda & Odimegwu (2019) then build on this by finding an increase in single-person households between 2001 and 2011. These authors also find that the determining factors for living alone differ by gender. For example, prolonged singlehood or non-marriage and higher educational attainment is associated with a higher likelihood of living alone amongst women, while lower educational attainment is associated with a higher likelihood of living alone amongst men.

An increase in internal migration is a further important contributor to the increased share of single-person households (Mutanda & Odimegwu, 2019), indicative of apartheid-era laws having a lasting effect on the labour system. With limited employment opportunities in rural areas, people are driven to seek employment in urban areas (Keller, 2004). Measures of labour migration - namely the movement of individuals out of their current homes in search of employment elsewhere, and the likelihood of households receiving private transfers (which includes remittances) - have declined between 1993 and 2015 (Posel, 2004, 2020). This decline has been subject to fluctuations in general economic conditions (Posel, 2020). However, labour migration is still a feature of South African life today, despite the removal of restrictions which was expected to result in labour migration no longer being prevalent (Posel, 2020).

Table 4: Size, composition, geographic area and race distribution of female- and male-dominated households

	Female-dominated households					Male-dominated households				
	2002	**2006**	**2010**	**2014**	**2018**	**2002**	**2006**	**2010**	**2014**	**2018**
Average household size	3.03	2.84	2.94	2.92	2.79	1.38	1.37	1.39	1.37	1.28
	(0.033)	(0.033)	(0.030)	(0.032)	(0.028)	(0.018)	(0.016)	(0.017)	(0.014)	(0.011)
Average number of children	1.57	1.39	1.46	1.43	1.33	0.16	0.13	0.14	0.12	0.09
	(0.028)	(0.027)	(0.024)	(0.025)	(0.022)	(0.011)	(0.009)	(0.010)	(0.008)	(0.006)
% that include child/ren	61.43	57.83	60.86	59.49	58.72	8.42	8.06	8.55	7.66	5.49
	(0.800)	(0.943)	(0.827)	(0.852)	(0.749)	(0.521)	(0.511)	(0.484)	(0.459)	(0.356)
% that include pensioner/s	19.52	20.34	22.80	21.90	21.78	7.38	8.04	8.03	8.12	8.19
	(0.597)	(0.685)	(0.652)	(0.591)	(0.567)	(0.447)	(0.520)	(0.429)	(0.387)	(0.380)
Single-person households (%)	31.57	34.56	31.00	32.25	33.50	77.85	76.90	74.82	75.86	79.84
	(0.803)	(0.936)	(0.802)	(0.833)	(0.726)	(0.835)	(0.887)	(0.811)	(0.828)	(0.663)
Includes 2 generations (%)	51.06	49.07	50.75	50.67	49.77	9.11	8.44	9.05	8.63	6.52
	(0.847)	(0.914)	(0.806)	(0.841)	(0.749)	(0.546)	(0.532)	(0.498)	(0.478)	(0.379)
Includes 3 generations (%)	7.69	7.18	7.93	7.65	7.61	0.41	0.33	0.28	0.34	0.27
	(0.370)	(0.412)	(0.344)	(0.337)	(0.336)	(0.100)	(0.078)	(0.071)	(0.074)	(0.068)
Skip-generation (%)	4.12	3.65	4.38	3.40	3.59	0.45	0.53	0.48	0.26	0.18
	(0.289)	(0.226)	(0.244)	(0.194)	(0.221)	(0.088)	(0.114)	(0.090)	(0.060)	(0.052)
Share of all households (%)	24.73	25.35	24.25	24.85	25.04	17.15	18.80	18.21	20.29	21.40
	(0.358)	(0.399)	(0.339)	(0.359)	(0.324)	(0.315)	(0.369)	(0.313)	(0.347)	(0.310)
Share of urban households (%)	22.04	22.84	21.99	22.29	22.65	16.80	19.95	18.47	20.14	21.23
	(0.462)	(0.524)	(0.441)	(0.459)	(0.393)	(0.415)	(0.494)	(0.407)	(0.448)	(0.382)
Share of rural households (%)	29.00	30.87	28.86	30.51	30.60	17.80	16.28	17.67	20.61	21.80
	(0.548)	(0.549)	(0.506)	(0.542)	(0.564)	(0.478)	(0.460)	(0.467)	(0.509)	(0.524)
Share of African households (%)	27.18	27.47	26.01	26.44	26.48	20.56	21.85	21.10	23.11	24.25
	(0.406)	(0.442)	(0.374)	(0.409)	(0.356)	(0.388)	(0.433)	(0.371)	(0.410)	(0.357)
Share of Coloured households (%)	18.36	17.23	16.75	17.88	18.94	6.90	7.69	6.63	7.29	8.82
	(0.950)	(1.219)	(0.953)	(0.950)	(1.118)	(0.626)	(1.092)	(0.541)	(0.608)	(0.758)
Share of Indian/Asian households (%)	10.32	16.23	12.23	11.45	12.31	3.56	6.96	8.02	8.60	10.68
	(1.795)	(2.811)	(1.664)	(1.638)	(1.827)	(0.820)	(1.776)	(1.854)	(1.394)	(1.629)
Share of White households (%)	18.29	19.62	19.80	21.08	20.67	7.81	10.03	8.47	11.35	9.34
	(1.133)	(1.321)	(1.266)	(1.201)	(1.220)	(0.617)	(0.889)	(0.682)	(0.827)	(0.793)

Source: Own estimates using 2002, 2006, 2010, 2014 and 2018 GHS

Notes: 1. The data have been weighted to be representative of population estimates | 2. Standard errors are shown in parentheses

Out of all households located in urban areas, the share that comprises female-dominated households has remained largely unchanged between 2002 and 2018, ranging between 22% and 23%, whereas male-dominated households in urban areas have increased from 17% to 21% of urban households. Compared to their share of all households, female-dominated households are under-represented in urban areas and over-represented in rural areas. For example, in 2018, 25% of all households are female-dominated, yet this household type accounts for only 23% of urban households and about 31% of rural households. This pattern could be indicative of women continuing to be "left behind" by migration. For the most part, male-dominated households' shares of urban and rural households mirror their share of all households.

Households with adults of one gender are over-represented amongst African households, slightly more so for male-dominated households. For example, in 2014, male-dominated households account for 20% of all households but for 23% of African households. In the same year, female-dominated households account for 25% of all households and 26% of African households. Amongst all other race groups, there is an under-representation of households with adults of only one gender, as mixed households dominate those race groups.

4.2.2. Mixed households

As depicted in Table 5 below (compared to results in Table 4), average size and number of children in mixed households is significantly higher than in households containing adults of only one gender. This follows at least partly from the guaranteed presence of at least two adults in the household by definition. In line with trends observed amongst all households, there has been a decline in average household size and number of children, and in the share of mixed households which include any children between 2002 and 2018. The share of mixed households that includes pensioner/s remains around one quarter throughout the period of study.

Of all households that contain adults, three-generation households feature most prominently amongst mixed households, although the share has decreased from 16% to 13% of mixed households between 2002 and 2018. Mixed households are also significantly more likely than all other households grouped by adult gender composition to include two generations. The slight decrease from 62% to 60% of mixed households with two generations, considered together with the decrease from 72% to 66% of mixed households that include children, likely reflects declining fertility rates. The share of mixed households that are skip-generation has increased marginally over 2002 to 2018, but the share of mixed households that are skip-generation lies below the share of female-dominated households that are skip-generation (and

above the share of male-dominated households that are skip-generation). This perhaps speaks to elderly women on their own facing a higher burden of care for children than their male counterparts and co-resident elderly women and men. The high burden of care placed on elderly women has been demonstrated for example by Schatz (2007), who finds that compared to households without a female pensioner, households that include a woman over 60 years of age are much more likely to have a foster child or an orphaned child in the household. In an earlier period, using 1996 census data, Edmonds et al. (2005) find that when a woman becomes eligible for the social pension, there is an increase in the number of children aged below five years old present in the household.

Compared to the constant (for female-dominated households) or increasing (for male-dominated households) share of households with adults of only one gender, the share of mixed households has declined over the period. Mixed-households' share of urban and rural households has also declined. In contrast to female-dominated households, mixed households are over-represented in urban areas and under-represented in rural areas throughout the period of study. For example, in 2002, mixed households account for 57% of all households, but for 61% of urban and 52% of rural households. Compared to mixed households' share of all households, their share of African households is lower while their shares of Coloured, Indian/Asian and White households are higher throughout the period. This comes about because amongst non-African households, mixed households account for at least two-thirds (and at most 86%) of households. This is likely attributable to higher marriage and cohabitation rates amongst non-African race groups compared to Africans, resulting in the nuclear-form of households being more prevalent amongst these race groups (Amoateng et al., 2007).

Table 5: Size, composition, geographic area and race distribution of mixed households

	2002	2006	2010	2014	2018
Average household size	4.72	4.42	4.47	4.37	4.24
	(0.023)	(0.023)	(0.022)	(0.022)	(0.020)
Number of children	1.76	1.56	1.58	1.51	1.44
	(0.016)	(0.017)	(0.015)	(0.015)	(0.014)
% that include child/ren	71.58	68.21	68.63	67.53	65.73
	(0.485)	(0.576)	(0.495)	(0.499)	(0.483)
% that include pensioner/s	25.48	24.00	25.09	26.04	26.23
	(0.411)	(0.468)	(0.406)	(0.410)	(0.411)
Includes 2 generations (%)	61.78	60.45	61.02	60.41	60.20
	(0.497)	(0.579)	(0.501)	(0.511)	(0.491)
Includes 3 generations (%)	15.66	13.80	14.24	14.17	13.37
	(0.316)	(0.339)	(0.298)	(0.298)	(0.302)
Skip-generation (%)	0.58	0.56	0.60	0.60	0.66
	(0.062)	(0.058)	(0.058)	(0.058)	(0.063)
Share of all households (%)	57.45	55.29	57.04	54.55	53.25
	(0.402)	(0.452)	(0.391)	(0.409)	(0.372)
Share of urban households (%)	60.90	57.05	59.36	57.47	56.03
	(0.531)	(0.600)	(0.511)	(0.533)	(0.461)
Share of rural households (%)	51.84	51.41	52.32	48.10	46.79
	(0.592)	(0.597)	(0.570)	(0.581)	(0.609)
Share of African households (%)	51.37	49.96	52.26	50.07	48.90
	(0.451)	(0.490)	(0.428)	(0.461)	(0.404)
Share of Coloured households (%)	74.67	74.94	76.56	74.82	72.21
	(1.064)	(1.478)	(1.036)	(1.049)	(1.242)
Share of Indian/Asian households (%)	86.12	76.81	79.75	79.95	77.01
	(1.911)	(3.073)	(2.301)	(2.066)	(2.282)
Share of White households (%)	73.90	70.32	71.73	67.49	69.98
	(1.199)	(1.458)	(1.350)	(1.305)	(1.331)

Source: Own estimates using 2002, 2006, 2010, 2014 and 2018 GHS

Notes: 1. The data have been weighted to be representative of population estimates | 2. Standard errors are shown in parentheses

4.2.3. "Residual" category: households with no adults present

From Table 6 it can be observed that the average size of no-adult households has decreased from about 2.1 to 1.7 over the period of analysis, which coincides with the increased incidence of single-person no-adult households from 47% to 59%. These findings are corroborated by Richter & Desmond (2008), who find from 2005 GHS data that the majority of no-adult households contain only one child, a striking contrast to the image often portrayed of groups of vulnerable children banding together in these types of households. Similar findings are also reported by Meintjes et al. (2010).

No-adult households constitute the smallest share of households, declining from 0.7% of all households in 2002 to just 0.3% in 2018. This trend corroborates earlier findings on the extent of child-headed households in the country, with Meintjes et al. (2010) for example finding that between 2000 and 2007, the share of children living in child-only households remains between 0.6% and 0.9%, with no statistically significant change.

The fall in average household size of no-adult households is explained by the increasing share of single-person households. Due to the afore-mentioned limitations of the GHS data, it is not possible to identify whether there are non-resident members of no-adult households, such as a parent or other adult caregiver living elsewhere possibly for employment or employment-seeking. This is plausible given that most children living in these households have at least one living parent, contrary to the often-made assumption of most child-only households arising from orphanhood. Between 2002 and 2018, 89% to 95% of children living in no-adult households have at least one living parent. No-adult households constitute a larger share of rural than urban households, and this may be attributable to parents or other adult caregivers living elsewhere due to labour migration to urban areas. This labour migration may also explain why, relative to their share of all households, no-adult households are over-represented in rural areas and under-represented in urban areas. There are virtually no Coloured or White households without resident adult members, and there are no child-only households amongst Indian/Asian households. Almost all households without adults include African children, but the share of African households that are no-adult households has fallen considerably between 2002 and 2018, from 0.9% to 0.4%.

Table 6: Size, composition, geographic area and race distribution of no-adult households

	2002	2006	2010	2014	2018
Average household size	2.06	1.94	1.70	1.83	1.65
	(0.113)	(0.101)	(0.086)	(0.119)	(0.137)
Single-person households (%)	46.96	46.40	54.55	46.30	58.74
	(4.854)	(4.726)	(4.697)	(6.251)	(6.397)
Share of all households (%)	0.68	0.56	0.50	0.31	0.31
	(0.065)	(0.053)	(0.047)	(0.039)	(0.040)
Share of urban households (%)	0.26	0.16	0.18	0.10	0.10
	(0.059)	(0.036)	(0.036)	(0.029)	(0.027)
Share of rural households (%)	1.36	1.44	1.15	0.78	0.80
	(0.141)	(0.150)	(0.122)	(0.108)	(0.117)
Share of African households (%)	0.90	0.72	0.63	0.38	0.38
	(0.087)	(0.069)	(0.060)	(0.048)	(0.049)
Share of Coloured households (%)	0.07	0.14	0.06	0.01	0.03
	(0.053)	(0.085)	(0.038)	(0.013)	(0.031)
Share of Indian/Asian households (%)	0.00	0.00	0.00	0.00	0.00
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Share of White households (%)	0.00	0.03	0.00	0.08	0.00
	(0.000)	(0.025)	(0.000)	(0.076)	(0.000)

Source: Own estimates using 2002, 2006, 2010, 2014 and 2018 GHS

Notes: 1. The data have been weighted to be representative of population estimates | 2. Standard errors are shown in parentheses

4.3. Economic well-being of households

Following the descriptive analysis of trends and patterns in household composition over time, this section describes gender differences in economic well-being. The analysis draws on the household's reported main source of income and experience of hunger, and household socio-economic status based on self-reported economic status and ownership of assets as a general indicator of wealth.

From Table 7, it can be observed that throughout 2002 to 2018, more than half of all households report earnings as the main source of income, with the share increasing steadily from 59% to 64%. Pension and grant income have become increasingly important as a household income source over time. This is the second most reported main source of income amongst households, with its share increasing from 16% in 2002, peaking at 22% in 2010, after which it declines insignificantly to about 21% in 2018.

As outlined in the literature review, there has been a dramatic expansion in South Africa's social grant system since 1994. During the period of review for this study, eligibility criteria have been expanded for the child support and older persons grants, two of the most commonly

received grants. This contributes to the observed upward trend in the reporting of pensions and grants as the main household income source. Grants make a significant difference for the poor, as they have been found to decrease the depth of poverty experienced by vulnerable households (Posel & Rogan, 2012). The likely consequence of a reduction in the depth of poverty is a decrease in the experience of hunger amongst vulnerable households.

Table 7 shows that over the 2002 to 2018 period, there has been an increase of more than 20 percentage points in the share of households where no one has gone hungry, indicative of a vast improvement in food security. Amongst households with children, the shares of households where no one went hungry and no child(ren) went hungry have also increased substantially, particularly from 2002 to 2006, echoing findings by Aliber (2009) of a substantial decline between 2002 and 2007 of households with children experiencing hunger. The share of child-containing households where children have never gone hungry is higher than the share where all household members have never gone hungry. This may be indicative of vulnerable households prioritising children when faced with constraints in providing food for everyone in the household. This follows findings from literature on household food security, which tend to report evidence of children being shielded from hunger by other household members (Labadarios et al., 2011; Nord, 2013; Van der Berg et al., 2020).

Table 7: Economic access to resources amongst all households (%)

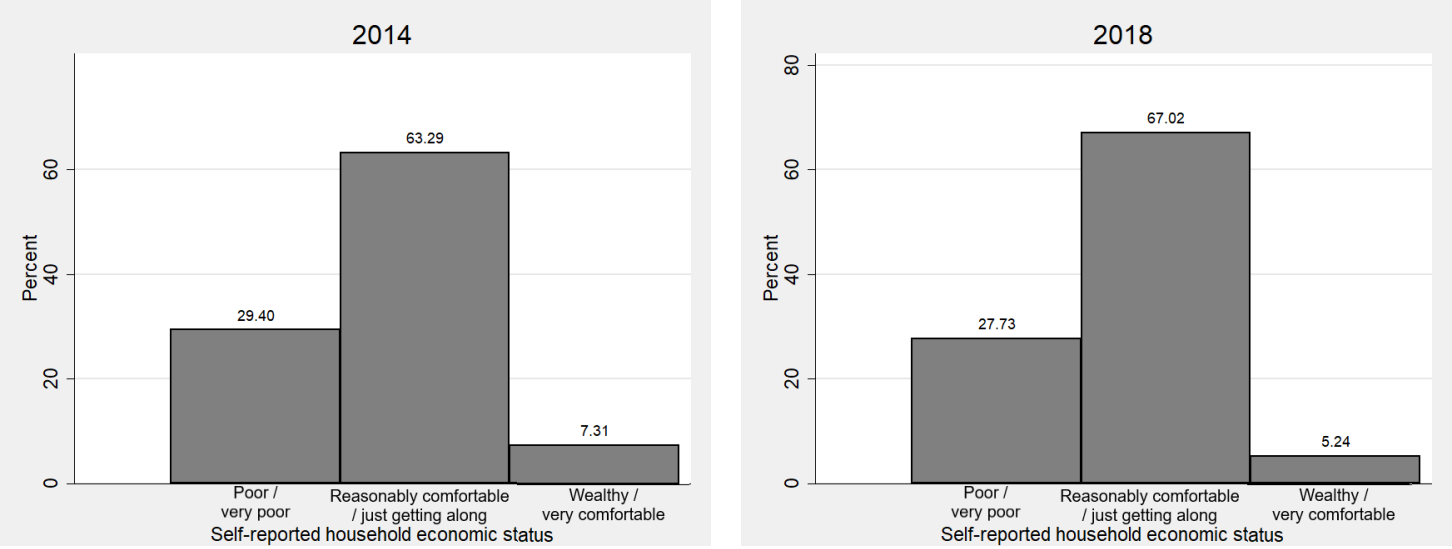
	2002	**2006**	**2010**	**2014**	**2018**
Main income source (% of households)					
Earnings	59.19	60.16	61.79	63.35	64.23
	(0.388)	(0.428)	(0.365)	(0.373)	(0.345)
Remittances	14.46	10.91	9.62	8.44	9.00
	(0.268)	(0.262)	(0.216)	(0.227)	(0.212)
Pensions and grants	16.12	21.46	22.11	22.09	21.12
	(0.260)	(0.329)	(0.279)	(0.287)	(0.276)
Other	6.70	4.44	1.50	1.53	1.42
	(0.218)	(0.185)	(0.106)	(0.103)	(0.091)
Unspecified	3.52	3.03	4.99	4.59	4.22
	(0.161)	(0.170)	(0.184)	(0.166)	(0.151)
Total (all households)	100	100	100	100	100
No hunger (% of households)	69.29	85.80	86.25	88.08	90.14
	(0.352)	(0.304)	(0.255)	(0.245)	(0.218)
No hunger (% of households with children)	63.93	83.27	77.79	79.88	82.70
	(0.463)	(0.406)	(0.394)	(0.402)	(0.374)
No hunger amongst children (% of households with children)	67.82	83.85	80.17	82.27	84.68
	(0.446)	(0.403)	(0.378)	(0.383)	(0.357)

Source: Own estimates using 2002, 2006, 2010, 2014 and 2018 GHS

Notes: 1. The data have been weighted to be representative of population estimates | 2. Standard errors are shown in parentheses

By households' own perceptions of their economic status, there has been a slight increase in the share of households in the "middle", who are either reasonably comfortable or just getting along, accompanied by decreases in both the share of households that are poor or very poor, and wealthy or very comfortable.

Figure 1: Distribution of households by self-reported economic status (2014 and 2018)



Source: Own estimates using 2014 and 2018 GHS

Thresholds for the objective measure of socio-economic status (wealth index) have changed marginally between 2014 and 2018 as shown in Table 8 below. The upper and lower bounds for the poorest third of households have shifted downwards, indicating a decline in wealth for this group. The upper bounds for the middle and wealthiest households have largely remained unchanged. The distribution across wealth terciles of households grouped by gender composition is assessed later in this section where gender differences in socio-economic status are discussed.

Table 8: Wealth index thresholds (2014 and 2018)

	2014		**2018**	
Wealth index	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Poorest (first tercile)	-2.4	-0.4	-2.5	-0.2
Middle (second tercile)	-0.4	1.6	-0.2	1.6
Wealthiest (third tercile)	1.6	8.4	1.6	8.4

Source: Own construction using 2014 and 2018 GHS

4.3.1. Gender differences in household economic access to resources

Adult-containing households

Earnings is most often reported as the main source of income for all households that include adults. Throughout the period of review, Tables 9 to 11 show that male-dominated and mixed households are significantly more likely to rely on earnings than female-dominated households: as shown in Tables 10 and 11, at least 64% of male-dominated and mixed households report earnings as the main source of income, while Table 9 shows that less than 50% of female-dominated households do. The share of each household type reporting earnings as the main source of income rises from 2002 to 2018: for male-dominated households, from 66% to 71%; for mixed households, 64% to 70%; and for female-dominated households, 45% to 48%. This is reflective of gender differences in labour market outcomes. While women's labour force participation has increased over time (pre- and post-1994), the rise in labour supply has exceeded the rise in employment amongst women (Posel, 2014; Casale et al. 2021). Unemployment amongst both men and women has risen between 1994 and 2019, with the ("strict") rate of unemployment amongst men (27%) being lower than amongst women (31%), and this difference widens when using the expanded definition of unemployment[5] (Casale et al., 2021).

Where women are employed, they are disadvantaged to men in terms of representation in low-paying and low-skilled jobs. The rise in women's employment during the first decade of democracy is dominated by growth in low-skilled and informal jobs, which offer little opportunities for advancement, and are typically low-paid and precarious (Casale & Posel, 2005; Casale et al., 2021). Subsequent to the 1994-2004 period, women's representation in elementary occupations has grown, and they are currently under-represented in high-skilled work (Casale et al., 2020). Women also face the labour market disadvantage of lower earnings; while the gender gap is found to have decreased over time, it has nevertheless persisted (Casale et al., 2020).

As shown in Table 9, female-dominated households are the most likely among households with adults to report remittances and pensions and grants as the main income source; with pensions and grants also featuring quite strongly amongst mixed households. While reporting of remittances as the main income source has declined over time, from 15% of all households in 2002 to 9% in 2018, there has been an increase in the share of households reporting pensions

[5] Which includes the unemployed who are not actively searching for work.

and grants as the main income source as outlined in the beginning of this section. This is partly attributable to the dramatic growth in South Africa's social grants programme highlighted in the literature review. Female-dominated households are more likely to contain pensioners and children than male-dominated households, and they experience the least favourable labour outcomes compared to the other adult-containing households. It then follows that female-dominated households are the most likely to report grants and pensions as the main income source. Less than 9% of male-dominated households report pensions and grants as the main source of income, which follows from these households being the least likely to include children and pensioners.

Across all years, male-dominated households are the most likely to experience no hunger. The share of male-dominated households where no one has gone hungry increases substantially from 73% in 2002 to 98% in 2018 as seen in Table 10. Considering that most male-dominated households consist of only one member, the burden of providing for the household is lower than in female-dominated and mixed households, which are larger on average. If people who live alone are not able to feed themselves, where possible, they will attach themselves to another household (Klasen & Woolard, 2009). The difference between the share of female-dominated and mixed households which experience no hunger remains within three percentage points throughout the period, with female-dominated households' share being the lower of the two. This could indicate that the burden of having to provide food for a greater number of people in the household is outweighed by being able to access a higher income, as mixed households are more likely than female-dominated households to rely on earnings, which are considerably higher than income from grants or remittances (Posel & Rogan, 2012; Posel, 2014).

Focusing on hunger amongst children, where the sample is restricted to households which contain at least one child, children in female-dominated households are most vulnerable compared to other adult-containing households. As observed in Table 9, the share of child-containing female-dominated households with no hunger amongst children increases substantially from 60% in 2002 to 80% in 2006, and subsequently fluctuates between 77% and 81%. Shares of no hunger amongst children follow a similar trend amongst child-containing male-dominated and mixed households, although their ranking changes over time. In most years, mixed households with children report the highest share of no hunger amongst children. Similar to what has been observed amongst all child-containing households (in Table 7), children in all households grouped by gender of adults are shielded from hunger, as the share

of households where children never went hungry is higher than the share of households where no one (i.e., all household members considered) went hungry. Overall, this shielding effect is strongest among female-dominated households. For example, in 2002, the share of child-containing households where children never go hungry is three percentage points higher than the share of child-containing households where all residents never go hungry. This supports previous findings amongst poor South African households, of women tending to skip meals so that their children can eat (Labadarios et al., 2011).

The share of child-containing households where there is no hunger amongst children does not show a clear upward trend beyond 2006. This observation has been echoed by Hall et al. (2018) who report that the rate of child hunger dropped significantly from 2002 to 2006, but has remained consistent between 2006 and 2017, suggesting that households remain vulnerable to food insecurity "despite the expansion of social grants, school feeding schemes and other efforts to combat hunger amongst children" (Hall et al., 2018, p. 146).

Table 9: Female-dominated households' main source of income and experience of hunger

	2002	**2006**	**2010**	**2014**	**2018**
Main income source (% of households)					
Earnings	44.58	44.73	44.64	46.88	48.10
	(0.857)	(0.932)	(0.816)	(0.849)	(0.751)
Remittances	26.15	17.39	16.40	16.20	16.35
	(0.716)	(0.634)	(0.553)	(0.649)	(0.553)
Pensions and grants	18.59	29.62	31.55	30.66	29.27
	(0.556)	(0.764)	(0.680)	(0.687)	(0.639)
Other	6.05	4.58	1.64	1.42	1.55
	(0.407)	(0.446)	(0.273)	(0.187)	(0.204)
Unspecified	4.63	3.68	5.77	4.84	4.73
	(0.387)	(0.382)	(0.452)	(0.329)	(0.332)
Total (all female-dominated households)	100	100	100	100	100
No hunger (% of households)	64.70	84.18	83.64	85.57	86.89
	(0.777)	(0.682)	(0.555)	(0.533)	(0.501)
No hunger (% of households with children)	56.54	79.79	74.80	77.40	79.36
	(0.997)	(0.909)	(0.798)	(0.799)	(0.763)
No hunger amongst children (% of households with children)	60.43	80.02	77.15	79.42	81.36
	(0.978)	(0.907)	(0.767)	(0.775)	(0.738)

Source: Own estimates using 2002, 2006, 2010, 2014 and 2018 GHS

Notes: 1. The data have been weighted to be representative of population estimates | 2. Standard errors are shown in parentheses

Table 10: Male-dominated households' main source of income and experience of hunger

	2002	2006	2010	2014	2018
Main income source (% of households)					
Earnings	65.66	67.69	69.30	71.15	70.87
	(0.954)	(1.003)	(0.848)	(0.826)	(0.726)
Remittances	16.58	15.03	14.83	11.12	12.65
	(0.693)	(0.774)	(0.656)	(0.541)	(0.546)
Pensions and grants	5.51	7.37	8.09	8.75	8.25
	(0.363)	(0.451)	(0.411)	(0.407)	(0.382)
Other	5.81	4.59	1.88	2.06	1.75
	(0.548)	(0.433)	(0.255)	(0.289)	(0.212)
Unspecified	6.45	5.33	5.90	6.93	6.47
	(0.558)	(0.530)	(0.460)	(0.528)	(0.403)
Total (all male-dominated households)	100	100	100	100	100
No hunger (% of households)	72.56	86.88	97.25	97.38	98.00
	(0.877)	(0.778)	(0.368)	(0.285)	(0.238)
No hunger (% of households with children)	63.67	84.63	83.95	79.74	81.53
	(2.992)	(2.248)	(2.428)	(2.221)	(2.602)
No hunger amongst children (% of households with children)	66.74	85.86	83.85	81.65	82.26
	(2.943)	(2.115)	(2.266)	(2.367)	(2.559)

Source: Own estimates using 2002, 2006, 2010, 2014 and 2018 GHS

Notes: 1. The data have been weighted to be representative of population estimates | 2. Standard errors are shown in parentheses

Table 11: Mixed households' main source of income and experience of hunger

	2002	2006	2010	2014	2018
Main income source (% of households)					
Earnings	64.16	65.19	67.15	68.30	69.50
	(0.477)	(0.531)	(0.443)	(0.451)	(0.437)
Remittances	8.00	5.86	4.53	3.52	3.74
	(0.252)	(0.245)	(0.189)	(0.182)	(0.183)
Pensions and grants	18.40	22.67	22.67	23.20	22.46
	(0.363)	(0.445)	(0.365)	(0.387)	(0.382)
Other	7.31	4.36	1.33	1.38	1.24
	(0.293)	(0.219)	(0.119)	(0.129)	(0.112)
Unspecified	2.13	1.91	4.33	3.60	3.06
	(0.140)	(0.173)	(0.212)	(0.174)	(0.172)
Total (all mixed households)	100	100	100	100	100
No hunger (% of households)	70.44	86.13	84.83	86.43	89.12
	(0.438)	(0.365)	(0.343)	(0.344)	(0.303)
No hunger (% of households with children)	66.81	84.45	79.29	81.19	84.49
	(0.527)	(0.452)	(0.459)	(0.472)	(0.426)
No hunger amongst children (% of households with children)	70.75	85.26	81.13	83.46	86.18
	(0.501)	(0.448)	(0.444)	(0.447)	(0.407)

Source: Own estimates using 2002, 2006, 2010, 2014 and 2018 GHS

Notes: 1. The data have been weighted to be representative of population estimates | 2. Standard errors are shown in parentheses

Households with no adults

As depicted in Table 12, households with no adults rely predominantly on remittances, as they constitute the main source of income for more than two-thirds of these households. However, reliance on remittances has declined overall from 82% in 2002 to 68% in 2018. Reporting of pensions and grants as the main income source for no-adult households has grown substantially from 1% to 20% between 2002 to 2018. The significance of remittances as an income source for no-adult households stems from children in these households depending on their parents, given that throughout the period of study, at least 89% of children in no-adult households have at least one living parent, and/or other adult caregivers who live elsewhere. The increase in the share of no-adult households reporting pensions and grants as the main source of income seems to suggest increased assistance being provided by their grandparents or other elderly caregivers living elsewhere.

Similar to what has been observed for hunger amongst children in all households, the share of no-adult households where no one went hungry increased significantly from 2002 to 2006 (58% to 84%), subsequently fluctuating between 81% and 84%.

Table 12: Main source of income and experience of hunger in households with no adults

	2002	2006	2010	2014	2018
Main income source (% of households)					
Earnings	7.3	8.4	7.8	2.8	5.2
	(2.385)	(2.511)	(3.153)	(1.670)	(2.985)
Remittances	82.2	78.5	72.9	78.7	67.5
	(4.381)	(3.979)	(4.403)	(4.906)	(6.072)
Pensions and grants	1.3	5.5	11.2	13.7	20.2
	(0.916)	(2.388)	(2.938)	(4.209)	(5.109)
Other	1.9	1.2	0.0	0.4	0.0
	(1.219)	(0.699)	0.000	(0.405)	0.000
Unspecified	7.4	6.4	8.0	4.5	7.1
	(3.848)	(2.554)	(2.555)	(2.413)	(3.438)
Total	100	100	100	100	100
No hunger (% of households)	57.7	84.0	84.7	80.7	81.3
	(4.670)	(3.311)	(3.453)	(5.444)	(5.411)

Source: Own estimates using 2002, 2006, 2010, 2014 and 2018 GHS

Notes: 1. The data have been weighted to be representative of population estimates | 2. Standard errors are shown in parentheses

4.3.2. Gender differences in socio-economic status

Figure 2 depicts the distribution of female-dominated, male-dominated, mixed and no-adult households by wealth tercile and self-reported economic status in 2014 and 2018. In both years,

the distribution of female-dominated, male-dominated and no-adult households amongst the wealth terciles is skewed to the right, with the majority of each household type being in the poorest tercile, and decreasing shares in the middle and wealthiest terciles. Mixed households' distribution amongst wealth terciles is skewed to the left, as the share of households in each tercile increases from the poorest to the wealthiest.

Each household type by adult gender composition has become "wealthier", as shares in the poorest tercile have decreased and shares in the middle and wealthiest terciles have increased. Compared to mixed and female-dominated households, male-dominated households are the worst off in terms of asset ownership, with more than 50% of these households being in the poorest tercile in both 2014 and 2018. Male-dominated households ranking lower in asset ownership than other adult-containing households may be contrary to expectations, but this result likely reflects the lower level of asset ownership in single-person households (compared to larger households), which comprise the majority of male-dominated households. As expected, households with no adults are the worst off overall: 70% are in the poorest wealth tercile in 2014, although this decreases to 64% in 2018.

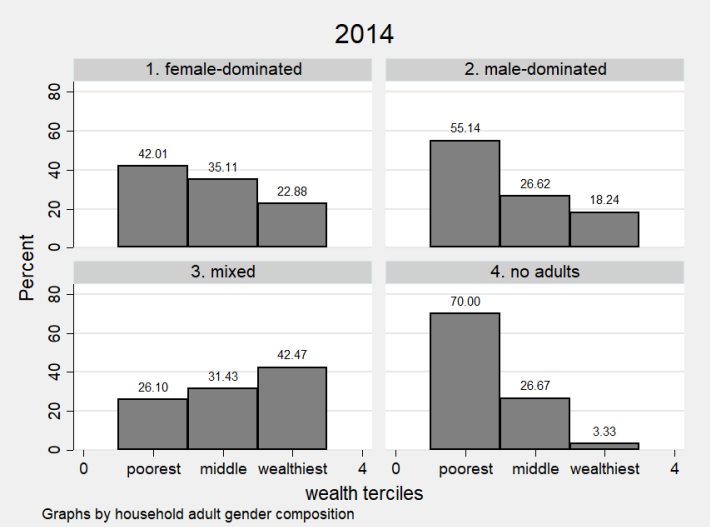
Households' own perceptions of economic status have the same ranking as the wealth measure. Perceptions also show an increase in economic status for all households, with the exception of no-adult households. However, these assessments paint a completely different picture in terms of how households are distributed by economic status: the majority of households, across all household types, are situated in the middle of the distribution – reasonably comfortable or just getting along – and this share increases for each household type from 2014 to 2018.

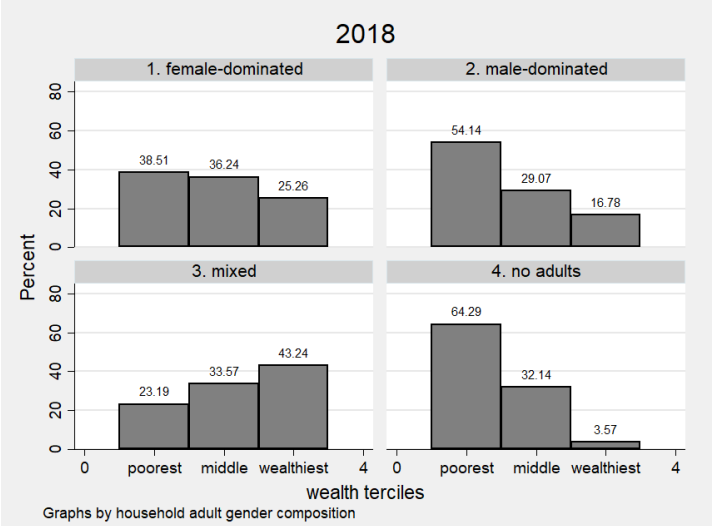
Richer households generally perceive their own socio-economic status as being lower than what a more objective measure would suggest (Posel & Casale, 2011). This may stem from the ownership of certain durable goods in the household (which is predominantly what the asset index is constructed with) not being perceived by these households to be as important an indicator of socio-economic status as other variables. Households with lower levels of asset ownership have higher perceptions of their socio-economic status than what the objective measure suggests. The difference is particularly stark between the households who perceive themselves to be in the "middle" but are "objectively" amongst the poorest households.

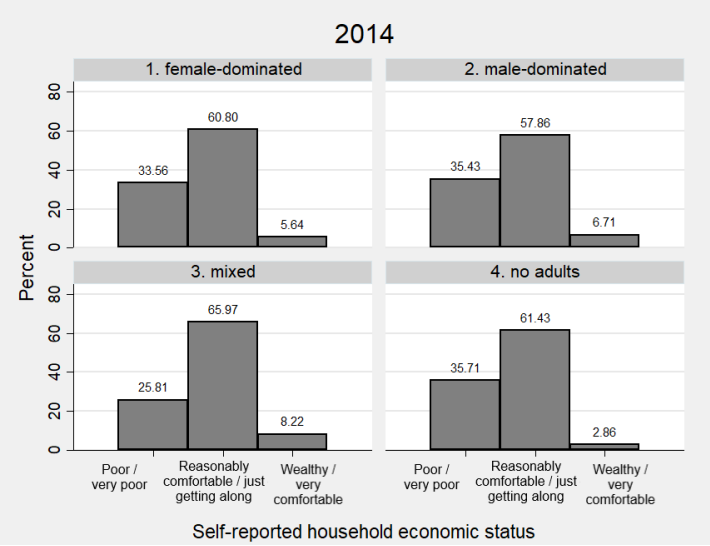
The descriptive analysis in this section finds that female-dominated households differ significantly from other household types in terms of composition, location and sources of income. In addition, female-dominated households are the most economically precarious

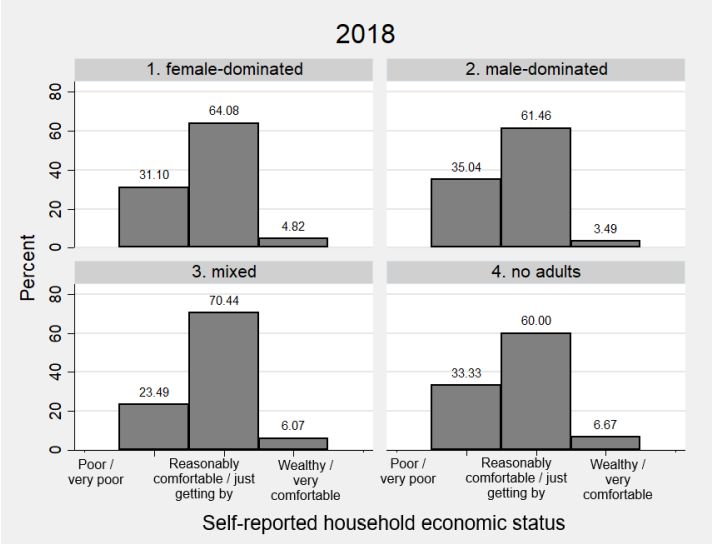
amongst adult-containing households, as measured by experience of hunger. In the following section, factors that are correlated with extreme vulnerability are further explored using multivariate regression analysis.

Figure 2: Distribution of wealth terciles and self-reported economic status amongst each household type (2014 and 2018)









Source: Own estimates using 2014 and 2018 GHS

5. Multivariate analysis – predicting extreme vulnerability

This section builds on the descriptive analysis of experience of hunger amongst households by running probit regressions at the household level to estimate the probability that a household experiences no hunger. The purpose of this multivariate analysis is to determine whether accounting for the afore-mentioned differences between female-dominated and other households in terms of household composition, location and sources of income removes or at least substantially reduces gender differences in economic vulnerability. Additional variables controlled for are race, and subjective and objective measures of household socio-economic status.

Estimates of the probability of no hunger in the household are presented in Table 13 below. The binary dependent variable equals 1 when no one in the household has experienced hunger, and 0 when there has been some experience of hunger in the household. The first model specification includes only household adult gender composition as explanatory variables; depicted in the first column. Compared to female-dominated households, male-dominated and mixed households are significantly more likely to experience no hunger. Only households with no adults are significantly worse off, with the probability of experiencing no hunger being 47 percentage points lower than female-dominated households.

Once variables relating to the geographic location and race of the household are added to the model, as shown in the second column, the positive coefficients for male-dominated and mixed households become smaller. In addition, for mixed households, there is a decline in the variable's significance level. Households in urban areas are on average two percentage points more likely than rural area households to experience no hunger, which is a small but significant difference. As expected, both African and Coloured households are less likely than White households to experience no hunger.

The third model specification adds variables relating to household size and composition (child and pensioner presence in the household), reported in the third column. With every additional household member, the probability of experiencing no hunger decreases by one percentage point. Controlling for household size, the addition of a child in the household decreases the probability of no hunger by two percentage points. Having a pensioner in the household is advantageous, increasing the probability of no hunger by one percentage point compared to

households without a pensioner. Compared to the first model specification, accounting for these household composition variables narrows the gap between female- and male-dominated households' probability of no hunger (although differences remain statistically significant), but widens the gap for mixed households.

As shown in the fourth column, a household not reporting earnings as its main source of income is significantly less likely to report no hunger in the household. Reporting pensions and grants as the main income source places a household at a particular disadvantage. When accounting for main household income, the gap in the experience of (no) hunger between female-dominated households and all other adult-containing households narrows further, but again, the differences remain significant.

Both objective and subjective measures of socio-economic status are highly significant correlates of the experience of hunger, as depicted in the fifth column. Compared to households which classify themselves as wealthy or very comfortable, poor or very poor households are ten percentage points less likely to experience no hunger. Households which consider themselves reasonably comfortable or just getting along are four percentage points less likely to not experience hunger. A similar pattern is observable for the "poorest" and "middle" ranked households compared to the wealthiest households as per the wealth index.

As variables relating to household characteristics are controlled for, coefficients on the adult gender composition variables decline, but they remain positive and significant for households with adults, and negative and significant for households that include only children. The probit analysis therefore reveals that part of the explanation for why female-dominated households are less likely to experience no hunger than male-dominated households in particular is because they are larger, more likely to include children and more likely to rely on pensions and grants. Vulnerability to hunger increases with household size and households with at least one child are less likely to report never experiencing hunger.

Table 13: No hunger probits for households (2018)

	Marginal effects (1)	Marginal effects (2)	Marginal effects (3)	Marginal effects (4)	Marginal effects (5)
Adult gender composition					
Male-dominated	0.111***	0.106***	0.084***	0.073***	0.081***
	(0.006)	(0.005)	(0.006)	(0.006)	(0.006)
Mixed	0.022***	0.011*	0.031***	0.020***	0.012**
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
No adults	-0.474***	-0.403***	-0.438***	-0.428***	-0.426***
	(0.067)	(0.065)	(0.063)	(0.064)	(0.067)
Geographic location					
Urban		0.023***	0.001	-0.014***	-0.027***
		(0.004)	(0.005)	(0.005)	(0.005)
Race					
African		-0.104***	-0.092***	-0.088***	-0.053***
		(0.004)	(0.005)	(0.005)	(0.011)
Coloured		-0.087***	-0.078***	-0.075***	-0.062***
		(0.008)	(0.008)	(0.009)	(0.013)
Indian/Asian		-0.016*	-0.019	-0.018	-0.011
		(0.009)	(0.011)	(0.012)	(0.018)
Household composition					
Household size			-0.010***	-0.012***	-0.012***
			(0.002)	(0.002)	(0.002)
Number of children			-0.020***	-0.012***	-0.011***
			(0.003)	(0.003)	(0.003)
Includes pensioner(s)			0.013**	0.054***	0.032***
			(0.005)	(0.006)	(0.006)
Main source of income					
Remittances				-0.023***	-0.011

					(0.008)	(0.008)
Pensions and grants					-0.107***	-0.057***
					(0.007)	(0.007)
Other					-0.030	-0.012
					(0.020)	(0.019)
Unspecified					-0.033**	-0.018
					(0.013)	(0.013)
Self-reported economic status						
Poor or very poor						-0.104***
						(0.011)
Reasonably comfortable or just getting along						-0.039***
						(0.010)
Wealth index						
Poorest (first tercile)						-0.082***
						(0.007)
Middle (second tercile)						-0.041***
						(0.005)
Observations	19,176	19,176	19,176	19,176	17,539	

Source: Own estimates using 2018 GHS

Notes: 1. The data have been weighted to be representative of population estimates. | 2. * indicates statistical significance at the 10% level, ** indicates significance at the 5% level and *** indicates significance at the 1% level. | 3. Omitted categories are female-dominated household; White; earnings; wealthy or very comfortable and wealthiest (third wealth tercile)

6. Conclusion

In South Africa, as in many countries around the world, household formation in recent decades has outpaced population growth, and households are becoming smaller on average. These trends are explained at least partly by declining fertility rates and a significant increase in the formation of single-person households. The highest rate of household formation occurs amongst male-dominated households, which have become more prevalent and whose share of all households has increased from 17% to 21% between 2002 and 2018. Female-dominated households have the next highest rate of formation and have largely maintained a consistent share of 25% of all households throughout the period. Mixed households have the lowest rate of household formation amongst adult-containing households and have declined in prominence, which is partially attributed to a decline in marriage rates.

Compared to male-dominated households, female-dominated households on average are larger, and are much more likely to include children and pensioners. While male-dominated households are characterised by single-person households, two-generation and three-generation households feature much more prominently amongst female-dominated and mixed households. Skip-generation households feature most commonly amongst female-dominated households.

In terms of economic access to resources, the descriptive analysis shows that male-dominated households have the lowest levels of precarity (as measured by the experience of hunger), followed by mixed households, female-dominated households and no-adult households which are the most economically precarious. However, this must be contextualised with the fact that most male-dominated households are single-person households and therefore face a much lower burden of care compared to other household types which are larger. Where people living alone cannot support themselves, they will also join other households where possible, so that the ability to live alone also depends on economic status.

Considering hunger amongst children in child-containing households, children are most likely to go hungry in female-dominated households. However, there is evidence of children being shielded from hunger in all child-containing households, and this shielding effect is strongest in female-dominated households. Children are least likely to go hungry in mixed households.

Amongst households with adults, female-dominated households are least likely to rely on earnings and most likely to report pensions and grants as their main source of income. This,

combined with female-dominated households being the most likely to include a pensioner, indicates the more prominent caregiving role and contribution to economic wellbeing that pensioners in these households provide compared to pensioners in other adult-containing households.

While the distribution of socio-economic status differs between the objective and subjective measures, the rankings of each household type are consistent. Contrary to what might be expected amongst adult-containing households, female-dominated households are not the least wealthy according to both subjective and objective socio-economic status measures: male-dominated households (which are mostly single-person households) are the worst off while mixed households are the most well off.

In terms of experience of hunger, female-dominated households are the most vulnerable among adult-containing households, as they are the most likely to experience some form of hunger. Differences in the vulnerability of households to hunger are explained partly by differences in household characteristics, including household size and composition, main income sources, socio-economic status, location and race. But even after controlling for these factors, female-dominated households remain more likely than other adult-containing households to report experiencing hunger.

Over time, households have become considerably more likely to report no instances of hunger. This is consistent with a fall in extreme poverty over the past twenty years, and is an indication of increased food security. However, these gains may have been reversed by the effects of the COVID-19 lockdown on people's livelihoods. Indeed, during the early lockdown period, about half of households (including grant recipient households) reported running out of money to buy food (Wills et al., 2020). During this time, hunger amongst all household members stood at 21%; and amongst children, it stood at 14% (Van der Berg et al., 2020; Wills et al., 2020). Experience of hunger amongst all household members during the early lockdown period is higher compared to this study's findings for 2018.

Major limitations of this study relate to assessing the extent of household hunger and identification of stretched households. Given the afore-mentioned ordinal responses to GHS questions relating to hunger, being able to assess gender differences in the extent of hunger experienced by households would be valuable. It would go further than merely determining whether or not a household has experienced hunger, providing a nuanced assessment of gender differences in the extent of economic precarity. In addition, it would be possible to assess the

effect of household characteristics on the extent of economic precarity. Regarding stretched households, with the GHS, like most household surveys in South Africa, it is not possible to identify non-resident household members. Stretched households have been established by the literature as a prominent feature in South African life. Given gender differences in labour migration and the fact that most children in child-only households have at least one living parent, assessing gender differences in stretched households would further advance the understanding of household composition and formation.

Despite the above-mentioned limitations, this paper has provided a broad analysis of gender differences in household composition and access to resources in South Africa over a period of almost two decades in the post-apartheid era. This study has also demonstrated the usefulness of household adult gender composition, as an alternative to headship, for tracing gender differences in access to resources.

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