



Household formation, living alone, and not getting married in South Africa

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Household formation, living alone, and not getting married in South Africa

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Abstract

In South Africa, households were formed at about twice the rate that the population grew between 1995-2011, and the count of single-person households mushroomed by 150%. Women became more likely to head households and men more likely to live alone over this period. Economic conditions in post-apartheid South Africa have been challenging; unemployment and poverty are high and income inequality is extreme. The question of why South Africans would form more and smaller households under these conditions is a provoking one. This paper seeks to understand the influence of long-term decline in marital rates in South Africa on the household formation process. Reweighted household survey data covering 1995-2011 is used to set up a model of household headship and living alone that includes an interaction of marital and labour market status. This is decomposed over time using an Oaxaca-Blinder decomposition. An acceleration in the rate at which never-married people form households emerges as an important driver of household proliferation (versus there simply being more never-married people). This paper fills a gap in the South African econometric literature on household formation pertaining to our understanding of the role of marital status. Most econometric research on household formation for South Africa focuses on employment and omits marital status even as a control.

Keywords: household formation; living alone; marriage

1 Introduction

In the first fifteen years of democracy between 1995 and 2011, South Africans rapidly formed households at about twice the rate that the population grew, and the number of single-person households alone increased by 150% (Thornton 2023b).¹ An explosion in living alone places the South African share of households that are single-person notably above that of developing country peers. The share of households that were single-person in 2011 in South Africa was 27% which was the same as in the United States in the same year, and much higher than Brazil (12% in 2010) or Colombia (11% in 2015) (Ortiz-Ospina 2019). The result is that average household size has shrink by almost a full person in just fifteen years. This rapid reduction is puzzling because economic conditions in South Africa have been tough: unemployment started out high at the end of apartheid and only increased since then (Casale et al. 2021).² Just over half the population were still living below the poverty line in 2011 (Statistics South Africa 2017), despite considerable social expenditure by the state. And, income inequality remains amongst the highest in the world (Alvaredo et al. 2018), mainly driven by a labour market that remains exclusive on historical dimensions of race and gender (Wittenberg 2017, Leibbrandt et al. 2016). It is therefore not obvious why South Africans would forego the better economies of scale that come with larger household sizes and spread themselves more thinly over more households over such a short period of time.

The three main pathways to household formation in the economic literature are getting a job, getting married, and getting older (Ermisch 1981, 1999). In South Africa the weight of the econometric literature on household formation has focused on the income pathway owing to open unemployment being a structural feature of the labour market for going on five decades (Klasen & Woolard 2009, Keller 2004, Ebrahim et al. 2013). The common finding is that unemployed people remain attached to the parental home, often supported by a pensioner, in the absence of State-sponsored unemployment support. If this is the case, it is even more puzzling why South Africans would form more and smaller households as unemployment has been persistent and increasing. Non-wage income has also been studied: the onset of pension income has been shown to strengthen a pensioner's say in decisions about who may live in the household (Ambler 2016). A common pattern is for young children to move in, while working-age women move out when a household member starts receiving a pension (Ranchhod 2017, Ardington et al. 2009, Edmonds et al. 2005). In other words, households recompose upon the onset of pension income, but do not necessarily shrink like they do in the developed world (Keller 2004). Again, if this is the case, it might not be immediately obvious that pension income will be leading to smaller households.

This paper focuses on the role of marriage in South African household formation. This

¹Between 1995 and 2011, the number of households increased by 58% but the population only changed by 28%

²Male and female strict unemployment rates increased from 17 and 25%, respectively, in 1994 to 26.8 and 31.5% in 2019 (Casale et al. 2021)

pathway and that of age have received less attention in South Africa. Getting older proxies for strengthening preferences for privacy and autonomy (Fafchamps & Quisumbing 2007), but South Africa has a youth bulge (Statistics South Africa 2016) and most young adults remain attached to the parental home (Thornton 2023a). Changing age structure therefore might not be the main driver towards smaller households. However, one of the most robust features of household change over this period has been the emergence of the never-married household head (Rogan 2013, Thornton 2023b). By 2011, never-married status had far and away eclipsed widowhood as the most common marital status of female household heads, and 70% of men living alone were never-married. Persistent decline in marital rates since the 1950s (Garenne 2016) has coincided not only with a growing majority share of never-married people in the population, but also an increase in the rate at which never-married people form households (Thornton 2023b). The focus on marriage in the household composition literature (Posel & Rogan 2012, Rogan 2013, Amoateng 1997, Posel & Hall 2021) has not followed through to the econometric literature which, as mentioned, has focused on employment. Almost all of the econometric models of household formation in the South African literature exclude marital status even as a control variable (Klasen & Woolard 2009, Ebrahim et al. 2013, Ambler 2016, Keller 2004) to avoid biasing estimates on their main variable of interest which is usually employment, and which is endogenous with marital status (Klasen & Woolard 2009). This could prove to be a pertinent omission and a gap that this paper aims to fill.

Elsewhere in the developed world marriage has been linked to changing household form. Delayed marriage entirely accounted for the rise in single-living in Japan between 1985 and 2010 where single-person households are today the most common household type (Raymo 2015). Declining rates of marriage and rising rates of divorce have been linked to new family forms and more single-living in OECD countries between at least 1970 and 2008 (OECD 2011); and poorer marital prospects were linked to more household formation by women in the United States (Craigie et al. 2018). But, why might marriage matter for household formation in South Africa's high-unemployment context? In well-functioning industrialised labour markets where almost everyone is employed, it is understandable that household change could pivot on marital change. The link is less obvious in South Africa where unemployment is excessive. In a country where the labour market is at once critical for welfare and highly exclusive, one can imagine how gaining access to labour market earnings might be a priority that overrides marital status when it comes to household formation. This intuition is reflected in the weight of econometric research on household composition in South Africa focusing on income. However, this focus neglects that marriage and labour markets are closely intertwined. Marriage has been the traditional way in which women access male earnings either because of female disadvantage in the labour market, or women specialising in household production (Lundberg 2001). When this pathway is destabilised because men are also often unemployed themselves, this has the potential to disrupt well-established patterns of household formation.

In this paper, I seek to understand the role that changing marriage patterns have played in household formation and single-person household formation, especially accounting for the endogeneity between marital and labour market status. I use a series of cross-sectional household surveys covering the period 1995-2011 combined with a new survey weight that specifically accounts for known weaknesses with these data that undermine the study of household change. I set up models of household headship and single-person household headship including an interaction of employment and marital status. These results are then decomposed over time to inform us about which components of this model have contributed most to rapid household formation in South Africa. My main finding, robust to different specifications, is that an acceleration in the rate at which never-married people form households is one of the most important contributors to household formation and living alone in South Africa. The implication is that household change is not only the outcome of more never-married people in the population, but that underlying household formation behaviour is changing. Unlike in the developed world where more divorce and aging populations are influencing changing household form (Peichl et al. 2012, Bradbury et al. 2014), a key driver in South Africa is that so many more people are not getting married in the first place. There could be many reasons for why South Africans are adjusting their household formation behaviour and answering this question is an important avenue for future research. For now, I highlight the theoretical importance of marriage for female access to income to enable household formation and how this might be modulated in a context of high male unemployment.

I make several contributions in this way. Firstly, I fill a gap in the South African econometric literature on household formation by specifically examining the role of marital status. Secondly, I use a new survey weight constructed in previous work (Thornton & Wittenberg 2022*b*) to present more accurate trends in both household headship and single-person household headship for the first time. This survey weight, thirdly, allows me to use 15-years-worth of household survey data to study single-person households. Prior to this study, most of the studies in the much smaller literature on single-person households in South Africa rely on data from the country's three censuses only (Amoateng et al. 2007, Jhamba & Mmatli 2015, Mutanda & Odimegwu 2019, Roux & Geyer 2017) because of known problems of undersampling small households in the national household survey data (Kerr & Wittenberg 2015, Thornton & Wittenberg 2022*b*).³ In the next section I provide an overview of household change and how it overlaps with change in marriage markets which sets up my research question. Thereafter in Section 3, I describe theory behind household formation that I use to set up my empirical model. In Section 4, I introduce my data, including the survey weights I use, and motivate the use of household heads as proxies for household formers. My model and decomposition method is detailed in Section 5.

³Exceptions are Wittenberg & Collinson (2007) who use data from the Agincourt Health and Demographic Surveillance System (HDSS); Jhamba & Mmatli (2015) who in addition to the 1996 and 2001 censuses, also use the 2007 Community Survey; and Posel & Hunter (2022) who uses the General Household Survey. Thornton & Wittenberg (2022*b*) suggest single-person households are probably undersampled in the latter two surveys.

Regression and decomposition results are in Sections 6 and 7, respectively.

2 What happened to South African households between 1995-2011

2.1 Household size and household formation

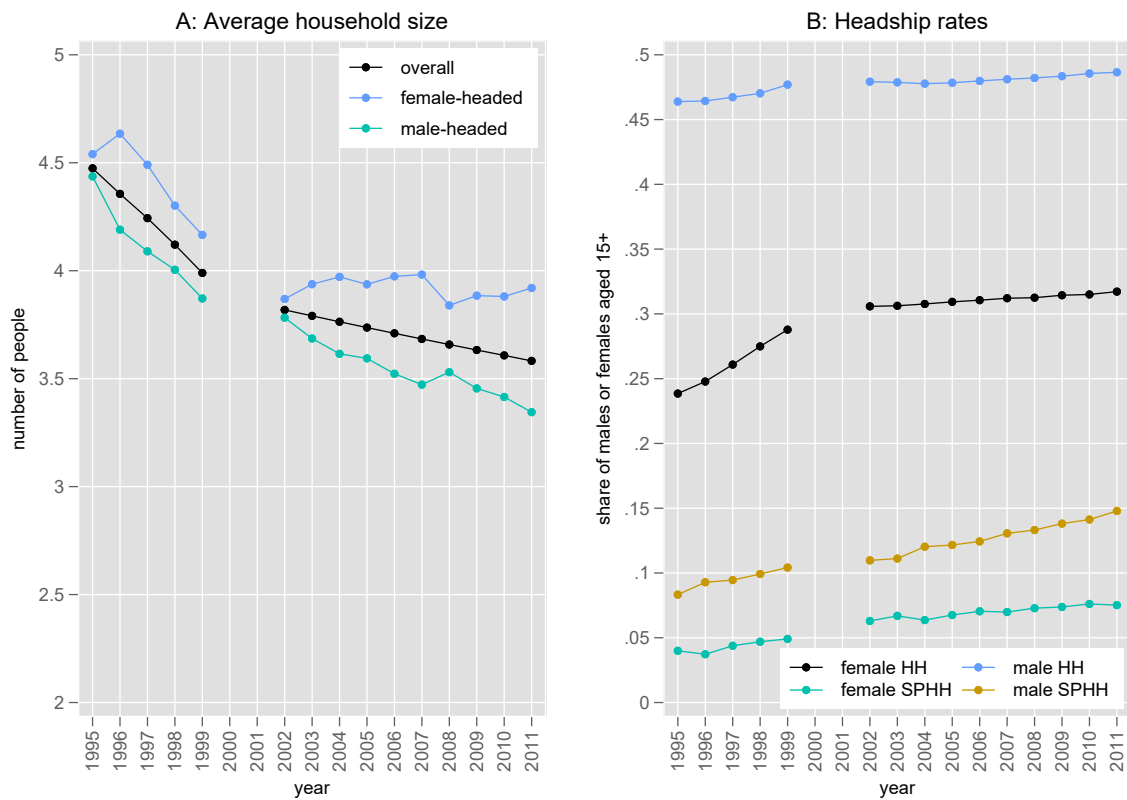
The number of households in South Africa increased from 9.02 million to 14.4 million between 1995 and 2011 (a change of 59%), but the population only increased from 40.4 million to 51.6 million (a change of 28%), resulting in a drop in average household size (Thornton 2023*b*, Wittenberg & Collinson 2007). Numerous authors noted the drop in average household size that happened after the end of apartheid and a major debate in the household literature has been whether Black African South Africans who traditionally subscribed to an extended family pattern, were gravitating towards the nuclear family pattern (Russell 2003, Ziehl 2002, Seekings 2008, Amoateng 1997, Steyn 1995). Twenty years later and with much more data, researchers agree that this is not the case (Posel & Hall 2021, Wittenberg & Collinson 2007, Thornton 2023*b*). There has been growth at the poles of household compositional complexity: men are mainly living alone and women are mainly heading up complex households including children. One should be cautious about interpreting more solo-living as evidence of more adherence to a nuclear family pattern in a region where circular labour migrancy has been part of the economy for more than 100 years (Wilson 2001, Posel & Hunter 2022). I return to this point shortly.

In Figure 1, average household size is charted in Panel A and rates of household headship and living alone in Panel B. There is one self-identified head per household in my data allowing me to characterise households by gender of the head.⁴ Panel A of Figure 1 shows that a steady decline in average household size over the 1995-2011 period masks quite different patterns for male- and female-headed households. Overall household size dropped from an average of 4.5 in 1995 to about 3.6 in 2011, meaning South African households lost almost a full person. Household size for both male- and female-headed households shrank notably in the 90s, but then this flattened out for female-headed households but continued to drop for male-headed. There was not much change in the average household size of female-headed households between 2002 and 2011, but male-headed households continued to lose about half a person.

These patterns are connected to the household headship rates in Panel B. Household headship rates are the share of household heads in the population aged 15 years and older. One head per household in my data means the number of household heads coheres with the number of households in the country, feeding into calculations of average household size. Single-person household headship rates are the share of people living alone in the population aged 15 years

⁴I discuss this proxy in more detail later on

Figure 1: Average household size, household headship rates and rates of living alone, 1995-2011



Notes: own calculations using the OHS-GHS series weighted using the weight from Thornton & Wittenberg (2022b) Headship rates calculated as the share of heads or single-person household heads in the population aged 15 years and older. HH = household head. SPHH = single-person household head.

and older and are a subset of household heads. Panel B shows that women more so than men ramped up the rate at which they formed households in the politically unique period of the 90s, whereafter both groups steadied their rate of household formation.⁵ Prime-aged and older women were responsible for the surge in the 90s, which coincided with an expansion in women's access to employment (Casale & Posel 2002), as well as, a set of legislative changes expanding women's freedom after apartheid (Karimakwenda 2020, Vetten 2013, Venter 1995, Bentley 2004). However, female unemployment also increased in this period which could be one reason why the headship rate then flattened in the 2000s (Casale & Posel 2002).

The explosion in living alone is a key driver of the drop in male-headed household size and the aggregate average household size. Of the 5.4 million new households added to the household count between 1995 and 2011, 45% were single-person households Thornton (2023*b*). The count of people living alone increased from 1.58 million to 3.98 million over the same time period. The share of households that were single-person quadrupled between the 1980 census and the 2011 census from about 6-7% of households to 27% (Simkins (1986) in Ziehl (2002)).⁶ This rise in living alone coheres with global trends where living alone has risen to unprecedented levels around the world (Snell 2017), but South African levels of solo-living are above that of comparable developing countries owing to a long history of oscillating labour migration in the southern African region (Wilson 2001). During much of the 20th century, mostly Black⁷ African male migrant labourers were housed in single-sex worker hostels at their location of work, often practically counting as living alone even though they were part of a household stretched over space (Xulu 2014, Machededze et al. 2007). Although apartheid was formally dismantled in the 1990s, many of the economic structures architected during that time have proven extremely difficult to uproot and modern economic migrancy remains a feature of the South African economy (Posel 2020).

It is therefore unsurprising that Black African men are the main demographic group behind the rise in living alone, and increased their rate of doing so by 86% (Thornton 2023*b*). However, men are also more able to live alone in general than women because they have better access to the labour market (Casale et al. 2021); are largely free from expectations to care for children (Makusha et al. 2019, Hatch & Posel 2018); and are less physically vulnerable in a country with high rates of gender-based violence (Abrahams et al. 2009, Karim & Baxter 2016). During the 90s, Black African men were also the only group of men to increase their household headship rate in general, which could be related to to new freedoms for them after the end of apartheid pertaining to movement and work. Men overall increased the rate at which they lived alone

⁵One concern is that the structural break in the trend for women coincides with the change of survey instrument. Thornton (2023*b*) investigates this using cohort analysis and find evidence that the trend is real.

⁶The 1980 census excluded the independent homelands of Transkei, Bophuthatswana, and Venda.

⁷I use the term 'Black' to apply to groups of the population classified as 'African', 'Coloured' (people of mixed-race heritage from the Cape and also associated with a distinct cultural identity); and 'Indian/Asian'. These are apartheid-era classifications which Statistics South Africa still uses to collect demographic data owing to the continued importance of understanding, quantifying and monitoring the legacy of apartheid in the post-apartheid era. The fourth population group category is 'white'.

from about 9% to 15%. First younger men increased their rate of solo-lining in the 90s, but then middle-aged and older men followed suit in the decade of the 2000s. A mostly flat rate of household headship for men in the 2000s, then hides considerable variation in the types of households South Africans are forming and which is behind persistent drop in average household size of male-headed households (Thornton 2023b).

2.2 The connection to slowing union formation

A key feature of household change in this period has been the rise of the never-married household head (Posel & Rogan 2012). Marital rates have been declining in South Africa since at least the 1950s (Garenne 2016) and diverge by race with Black Africans being much less likely to marry than whites (Posel & Rudwick 2013). This pattern is linked to apartheid-era policies that interrupted family life by separating spouses and would-be spouses through the labour migrant system. In post-apartheid South Africa high levels of male unemployment that also diverge correspondingly by race have contributed to worsening male marriageability (Posel & Casale 2013). Marital rates have declined to the degree that childcare has been de-coupled from marriage and a common fertility pattern is for women to have a child in their early 20s out of wedlock followed by another much later on (Hosegood et al. 2009, Moultrie & Timæus 2003).

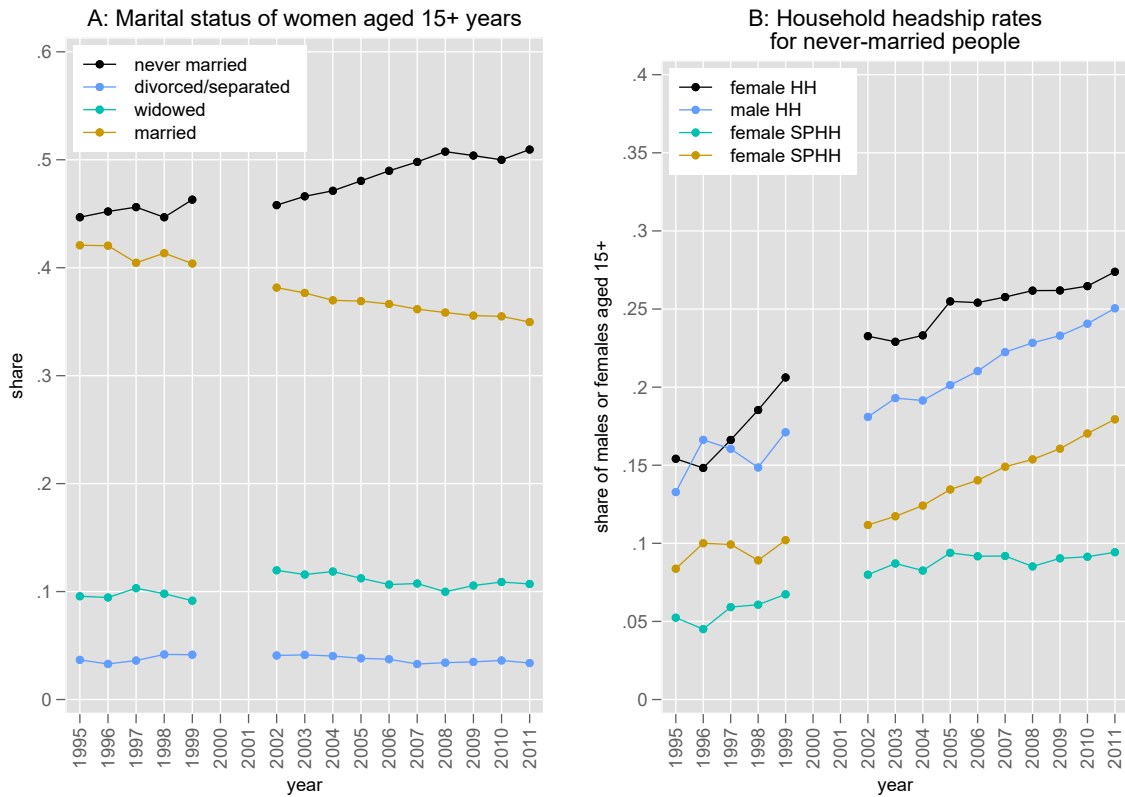
Figure 2 plots trends in the four marital status consistently observable in our data: never married, divorced/separated, widowed, and married. ‘Married’ in this instance includes cohabiting couples and all forms of traditional and civil marriage.⁸ By 2011, the never-married population made up 55% of the population older than age 15.⁹ At the same time, Panel B shows that there has also been persistent increase in the *rate* at which never-married people form households. This was never-married women of all ages in the 90s, but then never-married women aged 50 and older continued to increase their rate of household headship even in the 2000s when the overall female headship rate was relatively flat (Thornton 2023b).

The effect of these trends is described in Table 1 which reports the change in the distribution of marital status of household heads. In this instance, I separate married heads into ‘*de facto*’ and co-resident married household heads. *De facto* heads are married heads living without a co-resident spouse, meaning they could be a migrant worker or spouse of a migrant worker in a stretched household. At the outset, men are much more likely than women to be married co-resident household heads as they traditionally fill this position in conjugal units. By contrast, never-married and widowed women are tied as the most common marital status of female heads in 1995. Substantial shares of female heads are married *de facto* heads in 1995 (23%) and this

⁸In the 2002-4 GHS, cohabitation was combined with being married in the questionnaire. I have therefore combined cohabiters in other years with those who are married for the sake of consistency. Cohabitation increased from low levels in the 90s, but then stabilised at just under 10% of women aged 15 and older from 2005-2011. This increase is nowhere near enough to compensate for the decline in marital rates.

⁹Own calculations using the GHS weighted using the survey weight from Thornton & Wittenberg (2022b)

Figure 2: Trends in marital status and the household formation behaviour of never-married people in South Africa, 1995-2011



Notes: own calculations using the OHS-GHS series weighted using the survey weights from Thornton & Wittenberg (2022b). Headship rates calculated as the share of heads or single-person household heads in the population aged 15 years and older. HH = household heads. SPHH = single-person household heads.

can be compared to married *de facto* men living alone (36%). People living alone are most likely to be never-married by a long margin.

Table 1: The distribution of marital status of household heads in South Africa (%), 1995 and 2011

	Household heads			Single-person household heads		
	1995	2011	Change	1995	2011	Change
Men						
never married	15.05	30.22	15.17	52.85	71.14	18.29
divorced/separated	2.47	2.62	0.15	7.15	5.50	-1.65
widowed	2.54	4.79	2.25	3.72	6.79	3.07
married <i>de facto</i>	8.55	7.50	-1.05	36.27	16.56	-19.71
married co-resident	71.39	54.87	-16.52			
Total	100.00	100.00		100.00	100.00	
Women						
never married	28.87	44.03	15.16	58.59	63.97	5.38
divorced/separated	10.18	8.36	-1.82	9.08	8.03	-1.05
widowed	28.91	30.00	1.09	18.82	20.03	1.21
married <i>de facto</i>	23.39	11.89	-11.50	13.51	7.92	-5.59
married co-resident	8.65	5.73	-2.92			
Total	100.00	100.00		100.00	100.00	

Notes: own calculations using the OHS-GHS series weighted using the survey weight from Thornton & Wittenberg (2022*b*). Household headship rate = share of household heads amongst the population aged 15 years and older. SPHH = single-person household. Single-person household rate = share of people living in one-person households amongst the population aged 15 years and older. The rate of single-person households is a subset of the rate of household heads in general. Married *de facto* = head is married but no spouse is co-resident. Married co-resident = head is married and spouse is co-resident.

The main change regardless of sex of the head or household category is an expansion in the share of never-married heads. There was an approximately 15 percentage point increase in the share of both male and female heads who were never-married and the share of men living alone who were never-married increased by 18 percentage points. By 2011, more than 70% of men living alone were never-married. The categories that have shrunk are mainly married co-resident for men and married *de facto* for women and men living alone. An important question is to what extent links might still exist between these households despite a change in marital status, although this is beyond the scope of this paper. More never-married heads connect critically to household compositional change because never-married people are more likely to head certain types of households (Thornton 2023*b*). They are much more likely to head up single-person households than other groups; and a consistent third of never-married female-headed households included extended family and children under 15 over this period despite falling fertility.

2.3 The empirical research question

This brings me to my research question: how has marital decline impacted household formation and living alone? Answering this question is complicated by this period having seen extensive increases both in the share of people who are never-married and the rate at which this very large group has formed households. Are we seeing more households in South Africa because there are more never-married people in the population, or because the household formation behaviour of the never-married population is accelerating? The former case means household change is quite directly tied to declining marital prospects. But the latter case suggests a more complicated scenario where underlying household formation behaviour is changing. This could be happening for a broad range of reasons, from changing norms and values, to evolving livelihood strategies, to the nature of physical living conditions in post-apartheid cities. I set up a model of household headship and living alone, which I decompose into effects owed to composition or behaviour. Before I do so, I describe the theory required to set up this model in the next section.

3 Framework for studying household formation

The theoretical literature I am based in comes from Ermisch (1999, 1981) who compares indirect utilities of a young person moving out and forming their own household compared to remaining attached to their parental household. The basic components of our model are preferences for privacy and autonomy; the cost of moving out (housing prices); and the ability to afford to do so (wage and non-wage income) (Ermisch 1999). It is assumed that more privacy and autonomy increases utility, meaning some privacy and autonomy cost is incurred by living with other people (Fafchamps & Quisumbing 2007). Own access to wages or non-wage income increase the chance someone can form their own household, whilst higher house prices reduce this.

I extend this model for my purposes by considering the role of gender and marriage. Usually, preferences about privacy and autonomy are modelled as functions of age and education (Fafchamps & Quisumbing 2007). Gender relations and the role of marriage in society, however, also modulate social norms about who may have how much privacy and autonomy, and when (Fafchamps & Quisumbing 2007). Many South Africans subscribe to patriarchal ideas about gender (Timol et al. 2019, Boonzaier 2005, Albertyn 2009, Shefer 2010) and this intersects with the extended family pattern and established patterns of male labour migrancy in South Africa (Siqwana-Ndulo 1998, Ziehl 2002). A stylistic description of patriarchal gender relations would be that men hold more authority and are more independent than women. These norms make it more acceptable for young unmarried men to leave the parental home to ‘establish a household’ (an extension of autonomy). Women are expected to remain at home until they are married (and relatively sacrifice privacy and autonomy), upon which they join the household of either their husband or parent’s-in-law, as wives (Goldscheider & DaVanzo 1989, Siqwana-Ndulo 1998,

Claassens & Ngubane 2008). A married man is also more likely to form his own household to improve privacy for the married couple (Rosenzweig & Wolpin 1993). Whereas the conventional pattern is that women default into headship upon the onset of widowhood or divorce - the loss of a husband is the socially acceptable time for a woman to take on more autonomy.¹⁰ Acting against gender norms can be thought of as incurring some social cost, itself modulated by the extent to which gender norms clash with preferences about privacy and autonomy and the realities of conditions in the marriage market.

Patriarchal ideas about gender reinforce persistent norms about household gender specialisation, where women typically specialise in household production (housework and childcare) and men specialise in labour market production (Lundberg 2001). This sets up female disadvantage in the labour market due to women’s lost job experience from exits to care for children, as well as employers discriminating against women on the assumption childcare will make their tenure less stable (Lundberg 2001, Folbre 1995). This result has borne out in continued female disadvantage in the South African labour market, in terms of women both earning less and facing higher unemployment rates than men (Casale et al. 2021). The outcome is a perpetuation of women’s dependence on men’s earnings, traditionally accessed through marriage. Gaining a spouse usually means also gaining access to their labour market earnings if we assume households pool income, which is the assumption underlying most welfare analyses using per capita household income. This makes marriage central to female livelihood strategies in a way that is not the case for men. In turn, this makes marriage at least as important a factor for women when it comes to the financial feasibility of forming a new household, as her own wage or non-wage income.

4 Data

For this paper, I stack thirteen cross-sectional nationally-representative household surveys between 1995 and 2011. These surveys are the October Household Survey (OHS) that was collected by Statistics South Africa (StatsSA) every year between 1995 and 1999; and the General Household Survey (GHS) that StatsSA has collected every year since 2002. Both of these surveys have a two-stage cluster sampling design that was stratified at the provincial level.¹¹ Approximately 30 000 dwelling units are sampled resulting in sample size of about 95 000 - 100 000 people per wave.¹² Dwelling units are selected within about 3 000 Primary Sampling Units drawn from the Master Sample of enumeration areas set up during the most recent census at the time. Data is

¹⁰Many widows and divorcees are not allowed to remain in their husband’s home in South Africa (Claassens & Ngubane 2008) meaning it isn’t clear that she is choosing more autonomy.

¹¹The 2004 Master Sample used for GHS 2005-7 was stratified at the district council level, although StatsSA caution that the data is not representative at this level and more recently released versions of the GHS for 2002-2007 do not include a district council variable (DataFirst 2015).

¹²Exceptions are that the 1996 and 1998 October Household Surveys only surveyed about 16 000 and 20 000 dwelling units, respectively, due to budget constraints. There are about 70 000 people in the 1996 OHS and 80 000 in the 1998 OHS.

self-reported to the enumerator (or by proxy in the case of an absent respondent) and covers the spectrum from demographic and household information to basic labour market data. Important for my research, both surveys collect information about relationships within the household, defined in relation to a single self-identified household head. I harmonise a subset of variables useful for my purposes and stack the OHS (1995-9) (StatsSA 2010-2013) and the GHS (2002-11) (StatsSA 2011-2018), resulting in a data set with nationally-representative cross-sections for every year between 1995 and 2011 (except 2000 and 2001) of about 1.5 million people living in about 380 thousand households.

GHS data exists beyond 2011, but I limit my time period to 2011 for reasons relating to the survey weight. Problems with the StatsSA survey weights released with the data compromise the extent to which these data can be used to study household change (and other outcomes) with accuracy, both as individual cross-sections and as a time series. These issues are detailed by Thornton & Wittenberg (2022*b*) who go on to calibrate a new set of survey weights to solve these problems and which I use for this analysis (Thornton & Wittenberg 2022*a*). Thornton & Wittenberg (2022*b*) were only able to recalibrate the weights up until 2011, and I limit my time period accordingly. The original StatsSA weights create a set of statistical and conceptual problems that are particularly compromising for the calculation of variables combining person- and household-level information that I use in this paper, like average household size and household headship rates. Thornton & Wittenberg (2022*b*) also specifically constrained the weights on counts of one-, two-, and three-person households because of documented undersampling of small households in these surveys (Kerr & Wittenberg 2015). There are unrealistic jumps in the count of one-person households over time when using the StatsSA weights and the trend in the share of households that are one-person fluctuates wildly and diverges in a major way from the census. The weights from Thornton & Wittenberg (2022*b*) then make the study of households and single-person households, especially, much more reliable.

4.1 Operationalising household heads

My main outcome variables in this study is household heads and its subset of single-person household heads. Because there is one self-identified household head per household, the number of household heads tallies with the total number of households. This provides us with a useful lens to understand country-level change by asking who headed the 9 million households in 1995, and how were they different or similar to those who headed in the 14.5 million households in 2011? I use household headship as a proxy for the person most likely to have made the decision to form that household at some point in time.

Household headship is a not a perfect measurement tool and is a contested concept, particularly in the West. Two issues are at hand, firstly whether the concept is cohesively and meaningfully understood by my sample; and secondly, even if that is the case, is this useful as a

proxy for the household former. Regarding the first issue, the concept of household headship in a survey is a device of survey enumeration that might not be meaningful for household members themselves. South African and international feminist scholars have challenged the concept for being patriarchal and for being amorphous and diversely understood by respondents (Budlender 2003, Presser 1998). However, South Africa is in fact a highly patriarchal society and evidence exists for South Africa that the concept is well-understood. Qualitative evidence has found that South Africans can easily identify household heads without asking for clarification of what the concept means (Rogan 2016). Headship has also been shown to correlate closely with being the oldest household member, the breadwinner, and the final authority on household decisions (Posel 2001). Overall, the idea of a single household authority is a familiar one in South Africa (Rogan 2016), where ideas about hierarchy emerge from patriarchal norms ubiquitous in most cultural groupings (Shefer 2010, Albertyn 2009), high levels of religiosity (Chipkin & Leatt 2011), and these two aspects serving to reinforce messages about male household headship, in particular (Maisiri 2016).

The second issue is whether heads can be used as proxies for household formers. Support for this idea comes from headship being highly correlated with being the final decision-maker in a household (Posel 2001). The connection is imperfect though, because headship may not be static; people may inherit headship upon the death of the head; and people can make the decision to form the household jointly. Klasen & Woolard (2009), however, find evidence that headship is relatively stable. The African and Indian respondents from KwaZulu-Natal province in the 1993 South African Living Standards Survey were re-interviewed in 1998 for the KwaZulu-Natal Income Dynamics Study. From this two-wave panel they find 96% of household heads or spouses who were alive and resident in 1993 were still head or spouse in 1998. The few ‘demotions’ from the position of head had an average age of 67. Perhaps a larger concern is widows who inherit the household after her spouse’s death. In many cases widows probably are inheriting headship, however, in traditional rural areas of South Africa, many widows and divorcees are not allowed to remain in their husband’s home (Claassens & Ngubane 2008), relating to the tension between women’s position in constitutional and customary law. Ultimately, my choice to focus on heads is guided by my aim to understand the proliferation of households in our census and survey data and focusing on heads allows us to analyse this change directly: the more households I observe, the more heads I observe.

Related to the concept of headship is the concept of the household itself. South Africa’s history of oscillating labour migrancy has made relevant the concept of the ‘stretched household’ (Spiegel et al. 1996). As part of this system, usually male migrants spent extended periods away from wives and children who resided in the rural homelands to live close to their usually urban or industrial place of work, but maintained ties by sending remittances and returning for holidays, retirement, and when they were in need of care. The concept of the stretched household is therefore highly relevant to studying labour migrants, but this is unfortunately precluded in

my data. In my data, respondents are considered household members if they on average slept four nights a week in that household in the four weeks prior to enumeration. A limitation of this work is the inability to properly identify labour migrants and gain insight into to what degree changing patterns of migrancy might have contributed to household proliferation over the period. This is particularly an issue for my focus on single-person households, which might be more likely than other household types to be migrant destination households. However, the benefit of the strict definition is that we are able to avoid any double-counting of either people or households; directly tether my results to change observed in census data; as well as describe household change using the definition usually used to compute national welfare statistics.

5 Method

I first set up a regression model of household headship and single-person household headship. Then, I apply an Oaxaca-Blinder (OB) decomposition to my model over time to separate out the change in headship owed to behaviour versus attributes by running the thought experiment of holding one constant, changing the other, and computing how the headship rate would change. Figure 3 identifies the periods of analysis between which to decompose changes in my model of household formation. In defining these periods of analysis, I pool a few years at a time because decompositions are sensitive in general to choice of base and end period.

My Period 1 decomposition compares changes between samples pooled for years 1996-8 to those in years 2002-4, labelled ‘OHS’ and ‘Start GHS’ on the plot, respectively. I begin in 1996, and not 1995, because anomalous employment results in the 1995 survey suggest it is not a good choice of base year (Wittenberg 2014). The Period 2 decomposition compares 2002-4 (‘Start GHS’) to 2009-11 (‘End GHS’). I take this approach because the distinct trends between the OHS and the GHS for household headship in particular suggest its worth analysing these periods separately. At the same time, this acts as a robustness check, since the structural break in the patterns coincides with a change in survey instrument from the OHS to the GHS.

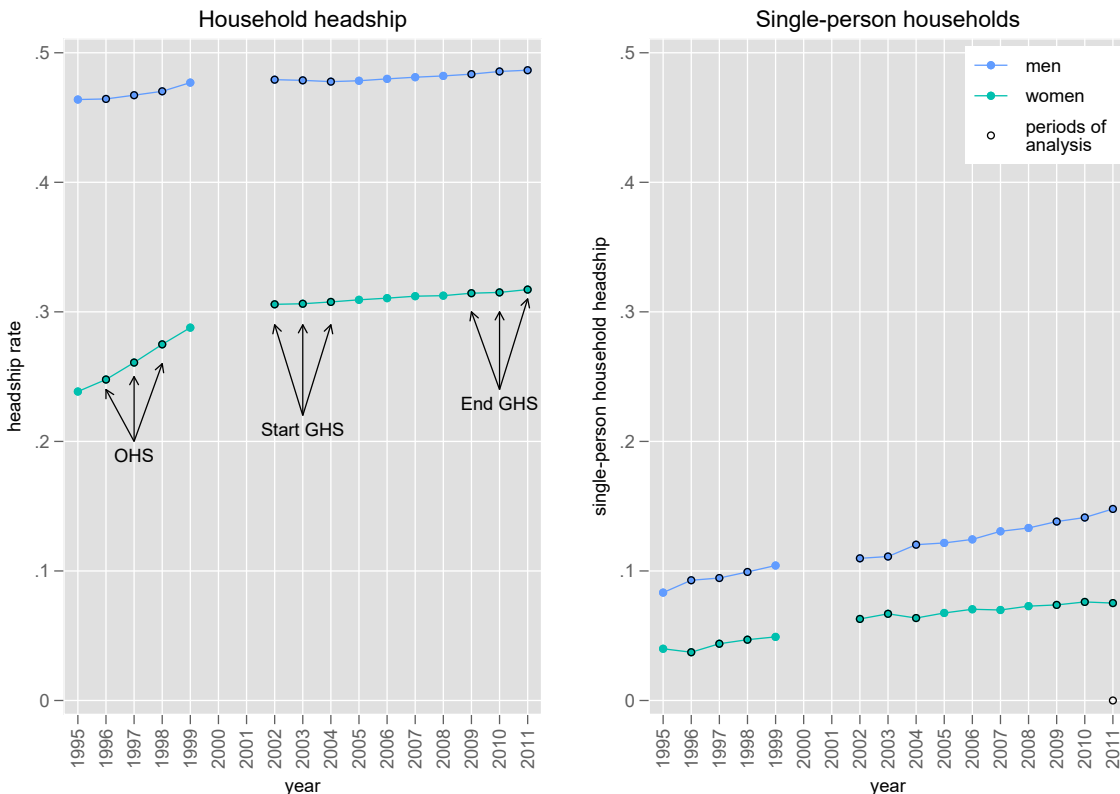
Rates of household headship and living in a single-person household (SPHH) in each period of analysis are reported in Table 2, along with change in the rate between periods and sample sizes. The changes reported in this table are the outcome gaps that I decompose later in the paper. As the previous descriptive section showed, the more important change for men was the increase in their rate of living alone; whereas, for women this was their expansion of household headship, especially in the 1990s. Over the total period, the female headship rate rose by 5.59 percentage points. Most of this change, 4.44 percentage points, happened in Period 1 reflecting the surge-and-settle pattern of the trend. The rate at which men lived alone increased by 4.79 percentage points over the total period with consistent growth in both Period 1 (1.85 percentage points) and Period 2 (2.94 percentage points).

Table 2: Levels and change in rates of household headship and living alone in three periods of analysis with sample size

	Women			Men		
	OHS 1996-8	Start GHS 2002-4	End GHS 2009-11	OHS 1996-8	Start GHS 2002-4	End GHS 2009-11
Headship:						
Rate (%)	26.18	30.61	31.77	46.87	47.77	48.75
Sample N	(105 296)	(109 657)	(105 269)	(83 997)	(93 468)	(87 360)
Change (pp):						
Period 1	4.44			0.90		
Period 2		1.15			0.98	
Total	5.59			1.88		
SPHH:						
Rate (%)	4.27	6.45	7.59	9.63	11.48	14.42
Sample N	(105 296)	(109 657)	(105 269)	(83 997)	(93 468)	(87 360)
Change (pp):						
Period 1	2.18			1.85		
Period 2		1.15			2.94	
Total	3.33			4.79		

Notes: own calculations using the OHS-GHS series weighted using the weights from Thornton & Wittenberg (2022b). Household headship rate = share of household heads amongst the population aged 15 years and older. SPHH = single-person household. Single-person household rate = share of people living in one-person households amongst the population aged 15 years and older. The rate of single-person households is a subset of the rate of household heads in general. Sample limited to reflect regression model sample for reasons of having consistency throughout, meaning the sample is limited to observations for which all regression variables in Tables 4 and 5 are non-missing.

Figure 3: Periods of analysis for a decomposition of household headship and living alone



Source: own calculations using the OHS-GHS series weighted using the weights from Thornton & Wittenberg (2022b).

5.1 The headship and single-person household model

I run a linear probability model (LPM) in which indicator variables for headship (H) and single-person living (S) are regressed on sets of explanatory variables. Typically researchers will favour a logit or probit model for binary outcomes, but follow I Jann (2018)’s suggestion and use an LPM because it is more reliable to decompose a linear model in the decomposition step. As a robustness check, I apply the Yun (2004) decomposition to a logit model reported in the appendices. Results are highly robust.

The regression is weighted using the survey weights from Thornton & Wittenberg (2022b) and I use cluster-robust standard errors to adjust for heteroskedasticity in the errors. The regression is run separately for sex in Stata 17 for each of my three time periods (OHS, Start GHS, End GHS) and limited to adults aged 15 years and older. Marital status is incorporated into my model by interacting it with labour market status based on my theoretical framework and previous descriptive work. A categorical marital status variable, MS , is interacted with employment status, E .

Table 3: Definitions of regression variables and vectors

Variable	Definition
H	1 = household head; 0 = not a household head
S	1 = single-person household; 0 = multi-person household
MS	categorical: married (base), never married, divorced/separated, widowed
E	1 = employed; 0 = not employed (NEA or unemployed)
P	categorical: 9 provinces with Western Cape as the base
<hr/>	
X	
<hr/>	
age	categorical: 15-24 years; 25-34 years; 35-44 years (base); 45-59 years; 60+ years
edu	categorical: primary or less; incomplete high school (base); high school/matric; post-secondary
pension recipient	1 = pension recipient and over 60 years; 0 = not pension recipient or under 60 years
rural	1 = rural location; 0 = urban location
informal dwelling	1 = informal dwelling (e.g. shack, backyard dwelling, caravan tent); 0 = formal dwelling (e.g. house, flat, traditional dwelling)
race	categorical: african (base), coloured, asian/indian, white

Other covariates in the vector X are based on the framework discussed above, with variable definitions in Table 3. The main preference function variables in vector X are age and education. I also control for own pension receipt as a form of non-wage income, but only people over the age of 60 are eligible for pensions so this variable enters as an interaction effect with the top age category of people aged 60 years and more. Some spatial characteristics are also included in X in the form of a rural location dummy and whether a respondent is living in an informal dwelling, along with province fixed effects (P). Finally, I also motivate the inclusion of race as a critical proxy for legacy effects of apartheid that explain variation in education, labour market outcomes, and marital prospects. For outcomes $Y = \{H, S\}$, the following specification is run for each individual i in a province p :

$$Y_{ip} = \beta_0 + \beta_1 \sum_{i=1}^n MS_{ip} + \beta_2 E_{ip} + \beta_3 \sum_{i=1}^n MS_{ip} * E_{ip} + \beta_4 X_{ip} + \beta_5 P_p + \epsilon_{ip} \quad (1)$$

5.2 Oaxaca-Blinder decomposition method

The OB decomposes the differential in an outcome between two groups by setting up a counterfactual thought experiment using linear regression models. Following Jann (2008), consider the difference (D) in the headship rate (H) over two periods of time, t_0 and t_1 (I use the headship example to describe the procedure, but the same applies to the single-person household case,

S):

$$D = E(H_1) - E(H_0) \tag{2}$$

where H can be modeled using a linear model:

$$H_t = X_t\beta_t + \epsilon_t, \tag{3}$$

$$E(\epsilon) = 0$$

$$t \in (0, 1)$$

The difference, D , can then be expressed as a difference in the linear prediction at the time-specific means of the explanatory variables:

$$D = E(H_1) - E(H_0) = E(X_1)'\beta_1 - E(X_0)'\beta_0 \tag{4}$$

This expression can be further rearranged in terms of contributions from differences in explanatory variables, coefficients, and both at the same time:

$$D = [E(X_1) - E(X_0)]'\beta_0 + E(X_0)'(\beta_1 - \beta_0) + [E(X_1) - E(X_0)]'(\beta_1 - \beta_0) \tag{5}$$

where the terms correspond with the endowment (W), coefficient (C), and interaction effect (I):

$$D = W + C + I \tag{6}$$

The W component is then the expected change in headship in t_0 if people in t_0 had the predictors of t_1 ; the C component is the expected change in headship in t_0 if people in t_0 faced the coefficients of t_1 . The I component relates to the change in headship that cannot accurately be allocated to either purely a change in predictors or a change in coefficients, but instead the simultaneous changing of the two.

The decomposition serves to ask the question ‘what must change in t_0 (behaviour or conditions) to get the higher headship rate of t_1 ?’. For household formation, I interpret the endowment effect as capturing change owed to changing conditions (e.g. more never-married people); and the coefficient effect as capturing behavioural change (e.g. differences in the rate at which never-married people formed households). The OB is executed in Stata 17 using the *oaxaca* command from Jann (2008).

A well-known problem that afflicts all versions of the decomposition is the base category problem (Fortin et al. 2011, Oaxaca & Ransom 1999, Jones & Kelley 1984, Gardeazabal & Ugidos 2004). When using categorical variables, researchers often include sets of dummies and exclude one which becomes the base category relative to which coefficients on the included dummies are interpreted. However, changing which category is omitted, changes the slope coefficients and

the intercept. The effect is to change the decomposition results, and specifically, the coefficient effects both in terms of the single dummies; as well as, the contribution of the categorical variable as a whole (but not the aggregate coefficient effect) (Jann 2008). It is impossible to tell which part of the coefficient effect is truly owed to group membership (the intercept) versus owed to differences in the effect of the omitted category (Fortin et al. 2011). Often the choice of which category to omit is arbitrary or based on practical modelling factors and, in fact, this problem can extend to continuous variables which have no meaningful interpretation of the zero-value or which have been scaled, e.g. standardised test scores (Jones & Kelley 1984).

Suggestions have been made to mitigate this problem,¹³ but Fortin et al. (2011) emphasise that there is no solution and the problem should be viewed as a conceptual one. Fortin et al. (2011) recommend choosing a meaningful base category. There are two considerations in this case: mainly marital status, and secondly, age. I use married 35-44-year-olds as my base since middle-aged married people feels like a meaningful category for my research question. All other bases were chosen based on the most common category so that my base could be described as highly representative of the average South African.

6 Regression results: correlates of household formation

The output for the regression on headship is in Table 4 and single-person household headship is in Table 5. The respective output for the logit models run as robustness checks are in Appendix Table 7 and Appendix Table 8, respectively. The constant term in the LPM output reflects the chance that my base category either heads a household or lives alone. The base category is married 35-44-year-olds meaning that for men the chance of heading a household in Table 4 is very high (around 70%), but lower for women (declining from 25% in the OHS period to 17% in the End GHS period). Similarly, it is rare that married 35-44-year-olds would be living alone meaning the base probability is about zero for the specifications in Table 5.

There are four main points I want to draw out of this output. The first point is that marriage has opposite effects on male and female headship, but works in the same direction for living alone. In Table 4, marriage makes men more likely to head households, but the opposite is true for women. Never-married women were 18 percentage points *more* likely than married women to head households in the End GHS period, whereas never-married men were 40 percentage points *less* likely than their married counterparts in the same period. In Table 5, though, being never-married makes both men and women more likely to live alone. Being widowed or divorced makes people most likely to live alone. Being widowed is also one of the most important correlates of

¹³For example, Gardeazabal & Ugidos (2004) and Yun (2005) suggest different ways of neutralising the effect of the base category on the intercept by normalising the categorical variable and forcing the coefficients to be expressed as deviations from the grand mean. But, as Fortin et al. (2011) point out, normalisation often comes at the cost of interpretable results.

Table 4: Regression results for the headship model

YVAR: Headship	Women			Men		
	OHS 1996-8	Start GHS 2002-4	End GHS 2009-11	OHS 1996-8	Start GHS 2002-4	End GHS 2009-11
MS: never married	-0.00 [-0.02,0.01]	0.12 [0.11,0.13]	0.18 [0.17,0.20]	-0.51 [-0.53,-0.49]	-0.46 [-0.48,-0.44]	-0.40 [-0.43,-0.38]
MS: divorced/separated	0.38 [0.35,0.41]	0.45 [0.41,0.48]	0.49 [0.45,0.53]	-0.29 [-0.34,-0.24]	-0.29 [-0.34,-0.25]	-0.23 [-0.28,-0.17]
MS: widowed	0.48 [0.46,0.49]	0.57 [0.55,0.58]	0.59 [0.57,0.60]	-0.21 [-0.28,-0.13]	-0.13 [-0.18,-0.09]	-0.05 [-0.09,-0.02]
E: employed	-0.02 [-0.03,-0.01]	0.04 [0.03,0.06]	0.03 [0.02,0.05]	0.11 [0.10,0.13]	0.15 [0.13,0.16]	0.13 [0.11,0.15]
MS*E: never married	0.28 [0.25,0.30]	0.28 [0.26,0.31]	0.22 [0.20,0.24]	0.11 [0.09,0.14]	0.11 [0.09,0.14]	0.12 [0.10,0.15]
MS*E: divorced/separated	0.19 [0.15,0.23]	0.17 [0.13,0.21]	0.14 [0.09,0.19]	0.10 [0.03,0.18]	0.10 [0.04,0.17]	0.09 [0.01,0.17]
MS*E: widowed	0.17 [0.15,0.20]	0.07 [0.05,0.10]	0.06 [0.03,0.08]	0.10 [0.01,0.20]	0.07 [0.01,0.13]	0.05 [-0.01,0.10]
age: 15-24 years	-0.21 [-0.22,-0.19]	-0.28 [-0.30,-0.27]	-0.31 [-0.33,-0.30]	-0.20 [-0.21,-0.18]	-0.24 [-0.26,-0.22]	-0.25 [-0.27,-0.23]
age: 25-34 years	-0.09 [-0.10,-0.08]	-0.14 [-0.15,-0.12]	-0.15 [-0.17,-0.14]	-0.07 [-0.09,-0.06]	-0.11 [-0.12,-0.09]	-0.12 [-0.14,-0.11]
age: 45-59 years	0.03 [0.02,0.04]	0.05 [0.03,0.06]	0.08 [0.07,0.10]	0.07 [0.05,0.08]	0.05 [0.03,0.07]	0.10 [0.09,0.12]
age: 60+ years	-0.01 [-0.03,0.01]	0.02 [-0.01,0.05]	0.07 [0.04,0.10]	0.11 [0.09,0.14]	0.12 [0.09,0.15]	0.16 [0.12,0.19]
pension recipient (aged 60+)	0.03 [0.01,0.06]	0.03 [0.00,0.06]	0.05 [0.02,0.07]	0.07 [0.03,0.11]	0.06 [0.03,0.09]	0.10 [0.06,0.14]
edu: primary school or less	0.01 [0.00,0.02]	0.02 [0.01,0.03]	0.03 [0.02,0.04]	-0.00 [-0.01,0.01]	-0.00 [-0.01,0.01]	-0.01 [-0.02,0.00]
edu: high school/matric	-0.00 [-0.02,0.01]	-0.01 [-0.02,0.00]	-0.01 [-0.02,-0.00]	0.03 [0.02,0.05]	0.01 [-0.01,0.02]	0.00 [-0.01,0.01]
edu: post-secondary	0.03 [0.01,0.05]	0.05 [0.02,0.07]	0.07 [0.05,0.08]	0.09 [0.07,0.12]	0.08 [0.06,0.11]	0.12 [0.09,0.14]
race: coloured	-0.11 [-0.13,-0.10]	-0.12 [-0.14,-0.10]	-0.10 [-0.12,-0.08]	-0.05 [-0.07,-0.03]	-0.08 [-0.11,-0.06]	-0.13 [-0.15,-0.11]
race: asian/indian	-0.15 [-0.17,-0.13]	-0.14 [-0.17,-0.12]	-0.13 [-0.15,-0.10]	-0.02 [-0.04,0.00]	-0.09 [-0.11,-0.06]	-0.12 [-0.15,-0.09]
race: white	-0.11 [-0.13,-0.09]	-0.12 [-0.14,-0.11]	-0.11 [-0.13,-0.09]	-0.01 [-0.03,0.01]	-0.11 [-0.15,-0.08]	-0.09 [-0.12,-0.06]
informal dwelling	0.08 [0.07,0.10]	0.10 [0.08,0.11]	0.15 [0.13,0.16]	0.12 [0.10,0.13]	0.14 [0.12,0.16]	0.22 [0.20,0.24]
rural	0.01 [-0.00,0.02]	0.00 [-0.01,0.01]	-0.00 [-0.02,0.01]	0.03 [0.02,0.05]	-0.00 [-0.02,0.01]	-0.01 [-0.03,0.00]
Province FE	YES	YES	YES	YES	YES	YES
_cons	0.25 [0.22,0.27]	0.21 [0.18,0.24]	0.17 [0.15,0.19]	0.72 [0.69,0.75]	0.72 [0.69,0.75]	0.69 [0.66,0.72]
N	105 297	109 657	105 269	83 999	93 468	87 360

Notes: own calculations using the OHS-GHS series weighted using the weights from Thornton & Wittenberg (2022b) on a sample of respondents aged 15 and older. Regression coefficient in boldface and 95% confidence interval in parentheses. Base groups for categorical variables are as follows: MS = married; MS*E = married or not employed; age = 35-44 years; edu = incomplete secondary schooling; race = Black African; prov = Western Cape.

female headship: widows were 59 percentage points more likely to head their own households in the End GHS period compared to their married counterparts. Note that the widows and divorcees make up much smaller shares of the adult population than never-married people.

Being both employed and unmarried increases the chance that people will form households or live alone: the interaction effect was sizeable and positive in almost all specifications for both sexes. This relates to my second important result, which is that the interaction effect is more important for women than for men, and appears to soak up most of the effect of employment for women because the effect of being employed on its own is much more muted for women than for men. Consider that employment alone increases the chance that a woman will head a household in the End GHS period by just 3 percentage points, all else equal, compared to 13 percentage points for men. By contrast the combination of being never-married and employed increases her chance of headship by an additional 22 percentage points in the same period, compared to only 12 percentage points for men. This underlines that being both employed and unmarried is a particularly important route to female household formation; whereas, there is more diversity for men who might leverage either employment, marriage, or both to form a household. But for both sexes, the interaction matters for living alone.

This brings me to the third point which is that the marital status effects are especially strong for men, potentially linked to the strength of patriarchal gender norms. These effects are interestingly larger than the employment effects. For example, the headship model predicts that a never-married employed man is still 15 percentage points less likely to head a household than a married not-employed man, all else equal, in the End GHS period. The strong marital status effect overpowers the positive effects of both employment on its own and its interaction with being never-married. The marital status effect also emerges as more important in men's single-person model. Just as being married was a key determinant of men heading households; being never-married is the key determinant for men living alone, with an important interaction with employment.

The fourth key point is that over time, the influence of the never-married term on its own strengthens. The never-married coefficient increases from zero to 18 percentage points for women between the OHS and End GHS periods. Never-married men increase the chance they would head a household relative to married men by 9 percentage points over time. Divorced and widowed men and women have also become increasingly likely to head households over time relative to their married counterparts. Similarly for living alone, the chance a never-married man would live alone almost trebled between the OHS and End GHS period. The size of the employment effect is more stable by comparison across specifications. The exception here is female headship between the OHS and Start GHS periods, where the employment coefficient changed sign and grew by 6 percentage points.

There are some interesting results from the other covariates. The results reflect that headship increases at a decreasing rate over age. Similarly, the cubic age profile for women living alone

Table 5: Regression results for the single-person household model

YVAR: Single-person household headship	Women			Men		
	OHS 1996-8	Start GHS 2002-4	End GHS 2009-11	OHS 1996-8	Start GHS 2002-4	End GHS 2009-11
MS: never married	0.04 [0.04,0.05]	0.05 [0.05,0.06]	0.07 [0.06,0.07]	0.06 [0.04,0.07]	0.10 [0.09,0.11]	0.15 [0.13,0.16]
MS: divorced/separated	0.09 [0.07,0.11]	0.10 [0.07,0.12]	0.13 [0.10,0.16]	0.26 [0.21,0.30]	0.24 [0.20,0.28]	0.33 [0.28,0.37]
MS: widowed	0.07 [0.06,0.08]	0.09 [0.08,0.10]	0.12 [0.10,0.13]	0.18 [0.14,0.21]	0.19 [0.16,0.22]	0.28 [0.24,0.31]
E: employed	0.00 [-0.00,0.01]	0.02 [0.01,0.03]	0.01 [0.00,0.02]	0.06 [0.04,0.08]	0.08 [0.06,0.09]	0.06 [0.05,0.07]
MS*E: never married	0.11 [0.09,0.13]	0.17 [0.16,0.19]	0.15 [0.13,0.16]	0.11 [0.09,0.13]	0.10 [0.08,0.13]	0.15 [0.13,0.16]
MS*E: divorced/separated	0.07 [0.03,0.11]	0.08 [0.04,0.12]	0.06 [0.02,0.11]	0.10 [0.03,0.17]	0.06 [-0.00,0.12]	0.08 [0.01,0.14]
MS*E: widowed	0.02 [-0.00,0.05]	0.03 [0.01,0.06]	0.04 [0.01,0.07]	-0.03 [-0.10,0.04]	0.05 [-0.01,0.10]	0.04 [-0.02,0.10]
age: 15-24 years	-0.03 [-0.04,-0.02]	-0.02 [-0.03,-0.02]	-0.04 [-0.05,-0.03]	-0.07 [-0.08,-0.05]	-0.12 [-0.13,-0.10]	-0.14 [-0.16,-0.12]
age: 25-34 years	-0.01 [-0.02,0.00]	0.01 [-0.00,0.02]	-0.01 [-0.02,0.00]	0.01 [-0.00,0.03]	-0.04 [-0.05,-0.02]	-0.06 [-0.07,-0.04]
age: 45-59 years	-0.01 [-0.02,-0.00]	0.01 [-0.00,0.02]	0.01 [-0.00,0.02]	0.00 [-0.01,0.01]	-0.00 [-0.02,0.01]	0.02 [0.00,0.03]
age: 60+ years	0.03 [0.01,0.04]	0.08 [0.06,0.10]	0.08 [0.05,0.11]	0.00 [-0.02,0.02]	0.01 [-0.01,0.02]	0.03 [0.01,0.05]
pension recipient (aged 60+)	-0.04 [-0.05,-0.03]	-0.07 [-0.09,-0.04]	-0.05 [-0.08,-0.02]	-0.01 [-0.03,0.01]	-0.01 [-0.03,0.01]	0.02 [0.00,0.04]
edu: primary school or less	-0.00 [-0.01,0.00]	0.00 [-0.00,0.01]	-0.01 [-0.02,-0.01]	0.01 [0.00,0.02]	0.01 [-0.00,0.02]	-0.00 [-0.01,0.00]
edu: high school/matric	0.01 [-0.00,0.02]	-0.00 [-0.01,0.01]	-0.00 [-0.01,0.01]	0.00 [-0.01,0.02]	-0.02 [-0.03,-0.01]	-0.01 [-0.02,-0.00]
edu: post-secondary	0.02 [0.01,0.04]	0.02 [0.00,0.04]	0.06 [0.04,0.07]	0.02 [0.01,0.04]	0.01 [-0.00,0.03]	0.05 [0.03,0.07]
race: coloured	-0.02 [-0.03,-0.01]	-0.02 [-0.03,-0.01]	-0.04 [-0.05,-0.03]	-0.04 [-0.06,-0.02]	-0.07 [-0.08,-0.05]	-0.08 [-0.10,-0.07]
race: asian/indian	-0.01 [-0.02,0.00]	-0.01 [-0.03,0.01]	-0.00 [-0.02,0.02]	-0.02 [-0.04,-0.00]	-0.05 [-0.07,-0.03]	-0.08 [-0.10,-0.06]
race: white	0.05 [0.03,0.06]	0.06 [0.04,0.08]	0.05 [0.03,0.06]	-0.02 [-0.03,0.00]	-0.03 [-0.05,-0.02]	-0.05 [-0.07,-0.03]
informal dwelling	0.06 [0.04,0.07]	0.08 [0.07,0.09]	0.12 [0.10,0.13]	0.16 [0.13,0.19]	0.21 [0.19,0.24]	0.23 [0.20,0.25]
rural	-0.01 [-0.01,0.00]	-0.01 [-0.02,-0.00]	-0.01 [-0.02,-0.00]	0.04 [0.03,0.06]	0.02 [0.00,0.04]	-0.00 [-0.02,0.01]
Province FE	YES	YES	YES	YES	YES	YES
_cons	-0.00 [-0.02,0.02]	-0.03 [-0.05,-0.02]	-0.01 [-0.03,0.00]	-0.03 [-0.06,-0.00]	-0.02 [-0.04,0.00]	-0.01 [-0.03,0.01]
N	105 297	109 657	105 269	83 999	93 468	87 360

Notes: own calculations using the OHS-GHS series weighted using the weights from Thornton & Wittenberg (2022b) on a sample of respondents aged 15 and older. Regression coefficient in boldface and 95% confidence interval in parentheses. Base groups for categorical variables are as follows: MS = married; MS*E = married or not employed; age = 35-44 years; edu = incomplete secondary schooling; race = Black African; prov = Western Cape.

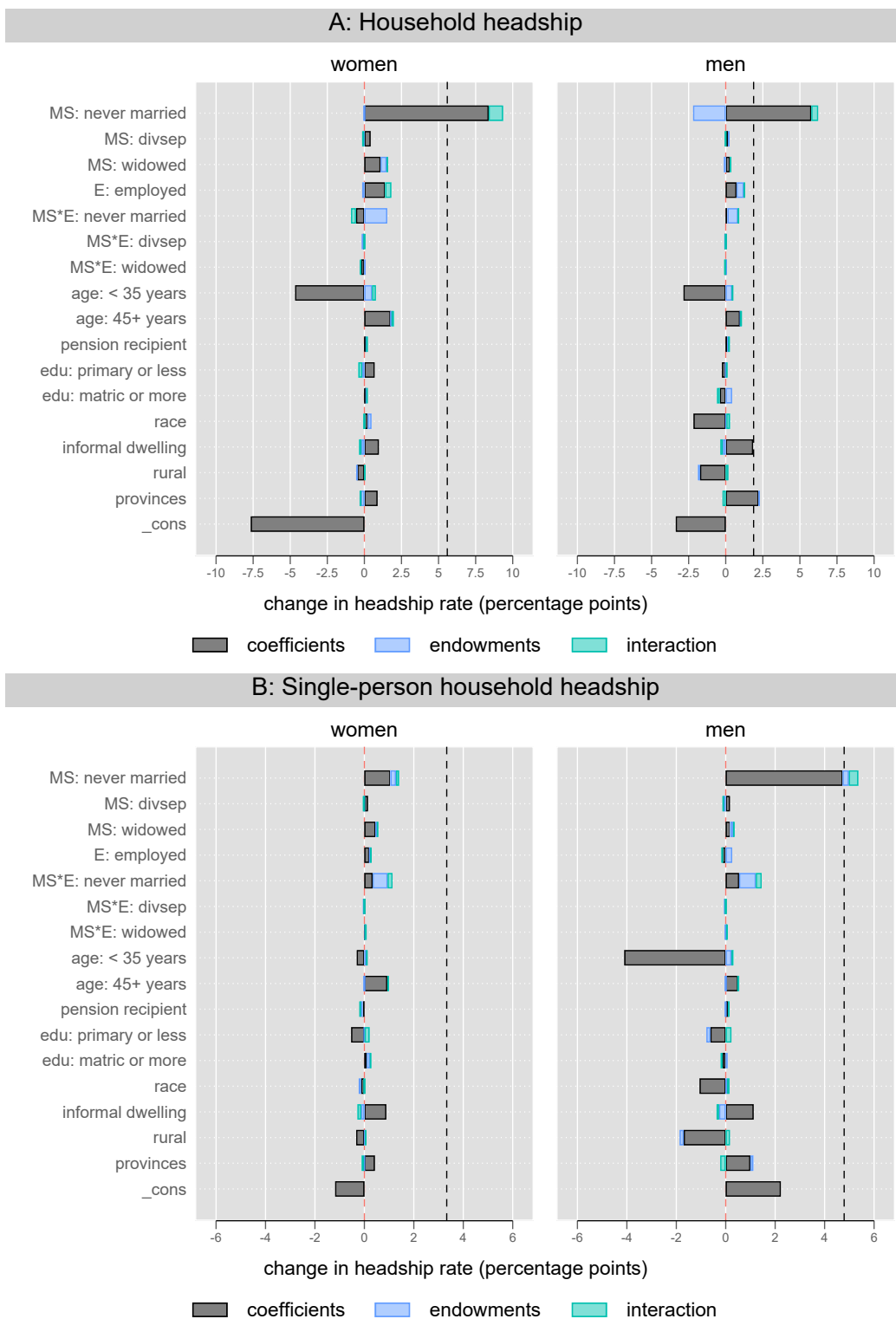
shown by Thornton (2023b), also comes out clearly in the regression results. The results for headship show the same change across time for both sexes, which is that older people are becoming more likely to head households. By the end of the period, there were notable increases in the rate at which the oldest adults (aged 60+) of both sexes both headed households and lived alone. Pension receipt is only coded positively if respondents are aged over 60, meaning this term should be interpreted as an interaction effect with the 60+ age category. Pension receipt increases the chance that people will head households, men more so than women. But female pensioners are significantly less likely to live alone than non-pensioners which is probably related to the important social security role grandmothers play in South Africa (Ambler 2016, Ranchhod 2017, Ardington et al. 2009, Edmonds et al. 2005).

7 Decomposition results: sources of change in household formation

The detailed decomposition output for the total period is reported in graph format in Figure 4 with headship in panel A and living alone in panel B. I only report the breakdown by Period 1 and 2 for headship, since it is the most interesting, in Figure 5. Point estimates for the detailed output is reported in table format in Appendix B along with results from the Yun (2004) decomposition on the logit models in Appendix C. Again, results are highly robust. Figure 4 reports the percentage point change in the headship rate that is attributable to the coefficient, endowment, or interaction effect of each variable. For example, the never-married coefficient effect was responsible for increasing the male headship rate by more than 5 percentage points whilst the endowment effect served to reduce headship by about 2.5 percentage points (a clearer interpretation will be made shortly). A black vertical reference line marks the overall change that is being decomposed (and reported in Table 2). This provides some sense of how important the effects are relative to the change. The effects of some variables are summed together to make the output easier to read. This has been done for the age and education categories (separately depending on which side of the base category they fall), as well as for race and provinces. Note also that the decomposition effects need to be interpreted in conjunction with how the underlying variable changed (i.e. did education levels go up or down over the period); the change in the predictors is reported in Table 6. The change in the coefficients is naturally the regression output discussed previously in Tables 4 and 5.

Results confirm that the marriage market has been an important driver of change. In Figures 4 and 5, the never-married effect is often the only one to ever account for more than the overall gap, by exceeding the black dotted line. This is mainly happening via a behavioural channel because the largest component of the never-married effects are coefficient effects, with hardly any contribution from an endowment effect. In Figure 4, the increase in the rate at which never-

Figure 4: Detailed decomposition results for the Total period (OHS - End GHS)



Source: own calculations using the OHS-GHS series weighted using the weights from Thornton & Wittenberg (2022b). Dashed black reference lines indicate the magnitude of the gap being decomposed as reported in Table 2.

married women headed households would hypothetically have raised their headship rate by 8.38 percentage points (accounting for 152% of the gap), if composition was held constant. Similarly, never married men's increased propensity to live alone hypothetically raised their single-person household headship rate by 4.73 percentage points (or, 99% of the gap) if composition was held constant. Endowment effects by contrast are small for men and insignificant for women. In terms of endowments, the 4.5 percentage point rise in the share of never-married men over time in Table 6 would have hypothetically *reduced* male headship since married men are much more likely to head households than never-married men, as the regression output just told us.

The decomposition adds more texture to our understanding of the role of the labour market. During the 1990s, there was a surge in female labour force participation (Casale & Posel 2002) and the share of employed women increased in Table 6 from 26.15 to 29.76% in Period 1. I expect that increased access to labour market income played a role in the expansion of female household formation over the same period. In other words, I would expect this process to play out in the form of a large endowment effect on employment in Panel A of Figure 5, but this is not the case. The sizeable employment effect is dominated by a coefficient effect. This large coefficient effect on employment is one of the main factors differentiating women's headship boom in Period 1 from Period 2's plateau in Panel A of Figure 5.¹⁴ This suggests the boom was affected not only by more access, but importantly also by faster household formation by employed women. Indeed the regression coefficient on employed women moved from -2 to 4 percentage points between the OHS and Start GHS periods, suggesting a key shift in how women used their labour market earnings to form households over this period. Acceleration in the rate at which employed women headed households over Period 1 would hypothetically have increased their headship rate by 1.65 percentage points, all else equal, accounting for 37% of the gap.

This behavioural story is different from an access story, which instead appears to be operating via the interaction between employment and being never-married. The regression output informed us that most of the female employment effect was soaked up by its interaction with marital status. This makes sense because married women's access to labour market earnings is traditionally through their husbands. For women in Figure 5, the *endowment* effect dominates the never married-employed effect in both periods. In Period 2, the endowment effect on this interaction accounts for 98% of the gap, all else equal. This suggests that access to a job is particularly important for fostering the household formation of never-married women specifically.

Being both never-married and employed was also an important combination for men's propensity to live alone. Looking at men in Panel B of Figure 4, the total effect on the never married-employed interaction is 1.45 percentage points (or, 30% of the gap). This total effect represents the next-largest effect contributing towards raising men's rate of living alone after never-married and the intercept term, to which I return shortly. In Panel B of Figure 5, men also have a large endowment effect on this interaction in Period 2, when men's headship rates

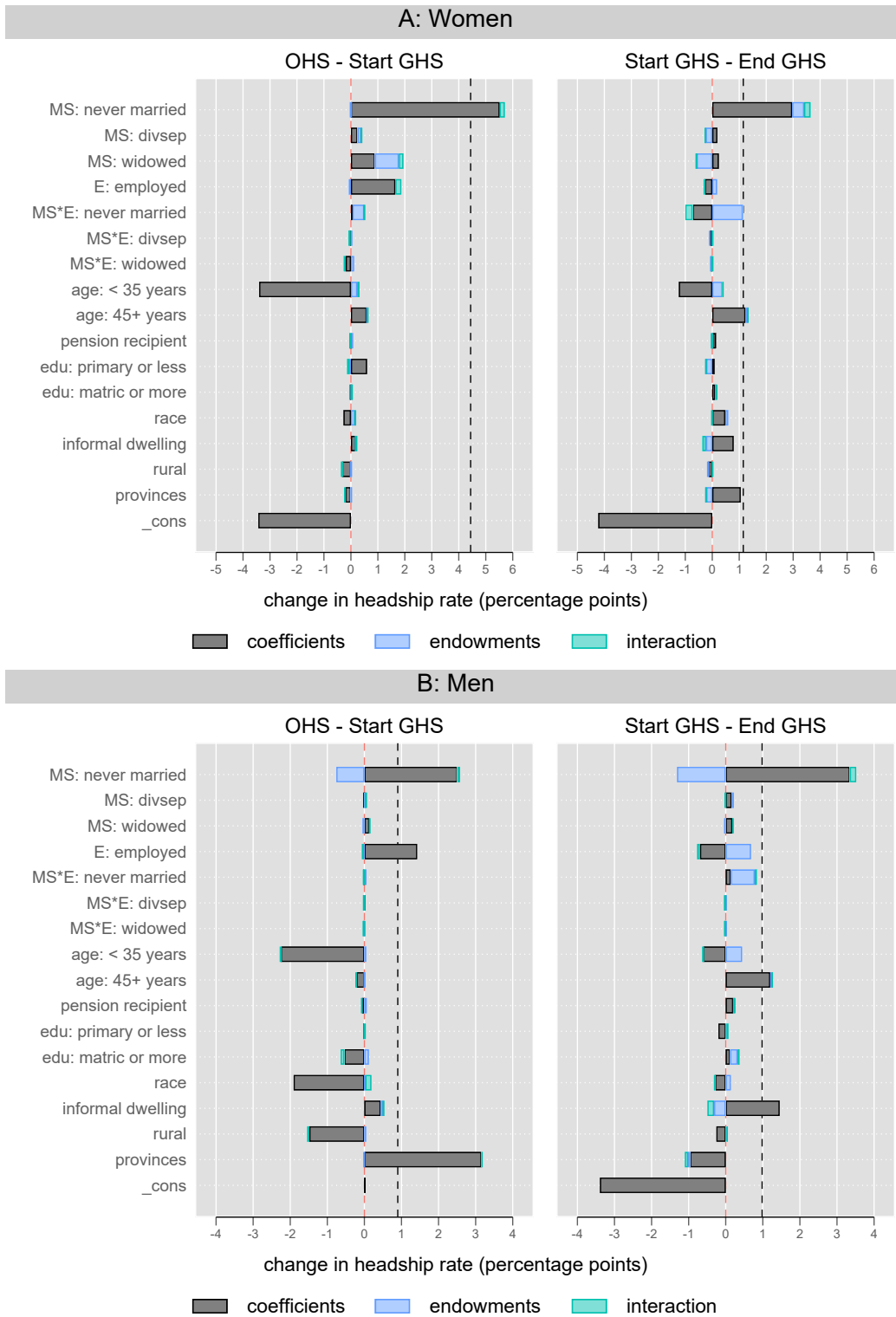
¹⁴The other differentiating factor is large coefficient and endowment effects on female widows in Period 1.

Table 6: Predictor means (% of population aged 15+ years)

	Women			Men		
	OHS 1996-8	Start GHS 2002-4	End GHS 2009-11	OHS 1996-8	Start GHS 2002-4	End GHS 2009-11
MS: never married	45.07	46.51	50.45	53.46	54.81	58.00
MS: divsep	3.69	4.08	3.50	2.41	2.30	2.05
MS: widowed	9.86	11.80	10.72	1.94	2.21	2.51
E: employed	26.15	29.76	33.57	44.06	43.90	48.28
MS*E: never married	9.23	10.80	14.67	14.12	14.62	20.22
MS*E: divsep	2.00	2.24	1.94	1.24	1.16	1.15
MS*E: widowed	1.87	2.57	2.37	0.50	0.62	0.82
age: 15-24 years	30.36	29.06	27.73	32.44	31.68	29.65
age: 25-34 years	23.78	23.75	24.27	25.37	26.14	27.38
age: 35-44 years	17.77	17.72	17.22	17.28	16.67	17.23
age: 45-59 years	16.42	17.44	18.48	15.98	16.87	16.94
age: 60+ years	11.68	12.03	12.30	8.93	8.65	8.80
pension recipient	6.93	9.38	9.07	3.65	4.60	5.04
edu: primary school or less	39.68	34.01	24.93	37.50	32.49	23.66
edu: incomplete secondary	38.98	40.25	42.05	37.97	39.33	42.88
edu: high school/matric	15.18	18.24	23.70	17.28	21.00	24.27
edu: post-secondary	6.15	7.49	9.32	7.25	7.18	9.19
race: black african	74.89	76.10	77.24	73.82	75.54	77.06
race: coloured	9.31	9.24	9.27	9.18	9.20	9.09
race: asian/indian	2.77	2.69	2.75	2.92	2.88	2.94
race: white	12.96	11.97	10.74	13.90	12.38	10.91
informal dwelling	14.71	14.69	12.32	17.74	18.37	16.16
rural	42.28	42.23	37.00	37.86	39.08	34.14
prov: Western Cape	10.49	10.69	11.50	10.88	10.96	11.71
prov: Eastern Cape	14.49	14.14	12.35	12.43	13.16	11.49
prov: Northern Cape	2.30	2.10	2.16	2.37	2.13	2.16
prov: Free State	6.50	5.89	5.60	7.09	6.09	5.46
prov: KwaZulu-Natal	21.84	20.76	19.75	19.98	18.56	18.06
prov: North West	6.53	6.88	6.34	7.01	7.67	7.14
prov: Gauteng	20.16	21.15	24.30	24.44	25.00	27.36
prov: Mpumalanga	7.17	7.12	7.46	7.29	6.98	7.45
prov: Limpopo	10.52	11.27	10.54	8.53	9.44	9.17

Notes: own calculations using the OHS-GHS series weighted using the weights from Thornton & Wittenberg (2022b) on the regression sample of respondents aged 15 and older. Base groups for categorical variables are as follows: MS = married; MS*E = married or not employed; age = 35-44 years; edu = incomplete secondary schooling; race = Black African; prov = Western Cape.

Figure 5: Detailed decomposition results for the headship model in Period 1 (OHS - Start GHS) and Period 2 (Start GHS - End GHS)



Source: own calculations using the OHS-GHS series weighted using the weights from Thornton & Wittenberg (2022b). Dashed black reference lines indicate the magnitude of the gap being decomposed as reported in Table 2.

took off. In other words, the growth in the share of people who are both never-married and employed (5.6 percentage points for women between the OHS and End GHS periods, and 6.6 percentage points for men) has contributed towards accelerating household formation.

The change in the constant term often rivals the size of the largest individual effects. This change is the effect of group membership, which in my case is the change over time in the chance that my base category (married 35-44-year-olds) would head households or live alone. The chance a woman in this base group would head a household falls quite substantially over time by just under 7.5 percentage points; whereas the chance the base category man will live alone increases. It is impossible to interpret this change in a way that is neutral to the base category problem. This interpretation problem also affects the quite large coefficient effects on age. The slow-down in the household formation behaviour of young adults (relative to the base group of middle-aged adults) reduced household formation by up to 5 percentage points for women and 3 percentage points for men. Faster household formation by older people relative to middle aged, increased the headship rate by about a percent.

The first main takeaway from the decomposition is that far and away faster household formation behaviour by never married people is one of the most important effects behind higher rates of household headship and living alone. Effects on never married status was often the largest effect across different samples and time periods, and usually this was dominated by the coefficient effect. This emphasises change in household formation behaviour of never married people versus simply the changing distribution of marital status across the population. This is an interesting result that is not intuitively obvious based on the trends in Section ???. The second main takeaway is that women became much more likely to convert jobs into their own household formation in the 1990s (i.e. a coefficient effect), and that access to a job at all (i.e. an endowment effect) was especially important for never married women. Together this suggests access to employment unleashed the household formation potential of never married women, in particular.

8 Conclusion

Between 1995 and 2011, South Africans formed more and smaller households and who was living in those households changed in systematic ways. Whilst in the developed world, an important role has also been played by a growing population share of the elderly and higher divorce rates (Bradbury et al. 2014, Peichl et al. 2012), this is not the case in South Africa. My main finding is that the acceleration in the rate at which never-married people formed households is one of the most important factors behind rapid household proliferation in post-apartheid South Africa. This result is consistent across all groups and outcomes and robust to various specifications. Behaviour change, rather than the changing marital status composition of the population, emerges as the stronger effect in the decomposition. This conclusion is not

immediately obvious from descriptive trends that show a steady increase in the share of never-married adults over time. In other words, the story in South Africa is about people not getting married in the first place, and how South Africans have adapted existing livelihood strategies (e.g. labour migration) and support systems (e.g. extended kin networks) to cope with the fallout.

Change in marital rates have had profound effects on household formation because marriage is so closely bound up with women's economic welfare in a way that is not quite the same for men. Historic female disadvantage in the labour market and specialisation in household production meant women were dependent on men's earnings, often accessed through marriage. However, as male unemployment shot up towards the end of apartheid, marital rates consistently declined as his marriageability suffered. The result has been change in household formation that reflects gendered access to labour market and social grant income across the life-cycle. A question I raised right at the beginning of this paper was, why would South Africans be forming households so quickly in the face of high unemployment? Counterintuitively, high unemployment may in fact be an indirect driver of household proliferation via its role in unbundling traditional gendered household specialisation and thereby, traditional household formation patterns.

A Logit regression model output

Table 7: Logit regression output for the headship model (marginal effects)

YVAR: Headship	Women			Men		
	OHS 1996-8	Start GHS 2002-4	End GHS 2009-11	OHS 1996-8	Start GHS 2002-4	End GHS 2009-11
MS: never married	-0.01 [-0.02,0.00]	0.10 [0.09,0.11]	0.15 [0.14,0.17]	-0.30 [-0.32,-0.29]	-0.27 [-0.29,-0.26]	-0.27 [-0.28,-0.26]
MS: divorced/separated	0.24 [0.22,0.26]	0.29 [0.27,0.31]	0.33 [0.30,0.36]	-0.17 [-0.19,-0.14]	-0.17 [-0.20,-0.15]	-0.16 [-0.20,-0.13]
MS: widowed	0.30 [0.29,0.31]	0.37 [0.35,0.38]	0.40 [0.39,0.42]	-0.14 [-0.18,-0.10]	-0.10 [-0.13,-0.08]	-0.06 [-0.09,-0.02]
E: employed	-0.02 [-0.03,-0.01]	0.04 [0.03,0.05]	0.03 [0.02,0.05]	0.09 [0.08,0.11]	0.14 [0.12,0.15]	0.12 [0.10,0.14]
MS*E: never married	0.23 [0.21,0.24]	0.18 [0.16,0.20]	0.13 [0.12,0.15]	0.09 [0.07,0.10]	0.05 [0.03,0.07]	0.07 [0.05,0.09]
MS*E: divorced/separated	0.15 [0.12,0.18]	0.14 [0.11,0.17]	0.12 [0.08,0.16]	0.03 [-0.01,0.07]	0.02 [-0.02,0.06]	0.05 [-0.01,0.10]
MS*E: widowed	0.17 [0.14,0.21]	0.11 [0.08,0.15]	0.09 [0.05,0.13]	0.05 [-0.01,0.12]	0.03 [-0.02,0.09]	0.07 [-0.00,0.15]
age: 15-24 years	-0.22 [-0.23,-0.20]	-0.27 [-0.28,-0.25]	-0.28 [-0.30,-0.27]	-0.18 [-0.19,-0.17]	-0.21 [-0.22,-0.19]	-0.21 [-0.23,-0.20]
age: 25-34 years	-0.07 [-0.08,-0.06]	-0.11 [-0.12,-0.10]	-0.12 [-0.13,-0.11]	-0.05 [-0.07,-0.04]	-0.08 [-0.09,-0.07]	-0.09 [-0.10,-0.08]
age: 45-59 years	0.03 [0.02,0.04]	0.04 [0.03,0.05]	0.07 [0.06,0.09]	0.06 [0.05,0.07]	0.05 [0.03,0.07]	0.09 [0.08,0.11]
age: 60+ years	0.00 [-0.01,0.02]	0.03 [0.01,0.06]	0.07 [0.05,0.10]	0.09 [0.07,0.12]	0.12 [0.09,0.14]	0.14 [0.11,0.18]
pension recipient (aged 60+)	0.02 [0.00,0.04]	0.01 [-0.01,0.04]	0.02 [-0.00,0.05]	0.06 [0.02,0.10]	0.03 [0.00,0.06]	0.09 [0.05,0.13]
edu: primary school or less	0.01 [-0.00,0.01]	0.02 [0.01,0.03]	0.02 [0.01,0.03]	0.00 [-0.01,0.01]	0.00 [-0.01,0.01]	-0.01 [-0.02,0.01]
edu: high school/matric	-0.00 [-0.02,0.01]	-0.01 [-0.02,0.00]	-0.01 [-0.02,0.00]	0.04 [0.03,0.05]	0.01 [0.00,0.03]	0.01 [-0.00,0.02]
edu: post-secondary	0.03 [0.01,0.05]	0.05 [0.03,0.07]	0.06 [0.05,0.08]	0.09 [0.06,0.11]	0.07 [0.05,0.09]	0.10 [0.08,0.13]
race: coloured	-0.12 [-0.13,-0.10]	-0.12 [-0.15,-0.10]	-0.10 [-0.12,-0.08]	-0.04 [-0.06,-0.02]	-0.08 [-0.10,-0.05]	-0.12 [-0.14,-0.10]
race: asian/indian	-0.17 [-0.20,-0.15]	-0.16 [-0.19,-0.13]	-0.15 [-0.19,-0.12]	-0.01 [-0.03,0.01]	-0.08 [-0.11,-0.06]	-0.12 [-0.15,-0.09]
race: white	-0.11 [-0.13,-0.09]	-0.13 [-0.16,-0.11]	-0.11 [-0.13,-0.09]	-0.01 [-0.03,0.01]	-0.11 [-0.14,-0.08]	-0.09 [-0.12,-0.07]
informal dwelling	0.08 [0.06,0.09]	0.08 [0.07,0.10]	0.13 [0.12,0.14]	0.11 [0.09,0.12]	0.13 [0.12,0.15]	0.19 [0.17,0.21]
rural	0.01 [-0.00,0.02]	0.01 [-0.01,0.02]	0.00 [-0.01,0.01]	0.03 [0.02,0.05]	-0.00 [-0.02,0.01]	-0.01 [-0.02,0.01]
Province FE	YES	YES	YES	YES	YES	YES
N	105 296	109 657	105 269	83 997	93 468	87 360

Notes: own calculations using the OHS-GHS series weighted using the weights from Thornton & Wittenberg (2022b) on a sample of respondents aged 15 and older. Coefficients are marginal effects. Regression coefficient in boldface and 95% confidence interval in parentheses. Base groups for categorical variables are as follows: MS = married; MS*E = married or not employed; age = 35-44 years; edu = incomplete secondary schooling; race = Black African; prov = Western Cape.

Table 8: Logit regression results for the single-person household model (marginal effects)

YVAR: Single-person household headship	Women			Men		
	OHS 1996-8	Start GHS 2002-4	End GHS 2009-11	OHS 1996-8	Start GHS 2002-4	End GHS 2009-11
MS: never married	0.07 [0.06,0.08]	0.11 [0.09,0.13]	0.13 [0.11,0.14]	0.07 [0.05,0.09]	0.11 [0.10,0.13]	0.17 [0.15,0.19]
MS: divorced/separated	0.10 [0.09,0.11]	0.14 [0.13,0.16]	0.17 [0.15,0.19]	0.20 [0.18,0.22]	0.21 [0.19,0.23]	0.28 [0.26,0.31]
MS: widowed	0.09 [0.08,0.10]	0.14 [0.12,0.15]	0.16 [0.14,0.18]	0.18 [0.15,0.20]	0.19 [0.17,0.21]	0.24 [0.22,0.27]
E: employed	0.03 [0.01,0.04]	0.07 [0.06,0.09]	0.07 [0.05,0.09]	0.09 [0.07,0.11]	0.11 [0.09,0.12]	0.10 [0.08,0.12]
MS*E: never married	0.03 [0.01,0.04]	0.03 [0.01,0.04]	0.02 [0.00,0.04]	0.03 [0.01,0.05]	0.02 [0.00,0.04]	0.04 [0.02,0.06]
MS*E: divorced/separated	-0.01 [-0.02,0.01]	-0.03 [-0.05,-0.01]	-0.04 [-0.07,-0.02]	-0.03 [-0.06,0.00]	-0.05 [-0.08,-0.01]	-0.03 [-0.06,0.01]
MS*E: widowed	-0.01 [-0.03,0.00]	-0.04 [-0.06,-0.03]	-0.04 [-0.06,-0.02]	-0.09 [-0.12,-0.05]	-0.07 [-0.10,-0.04]	-0.04 [-0.08,-0.01]
age: 15-24 years	-0.03 [-0.04,-0.02]	-0.03 [-0.03,-0.02]	-0.04 [-0.06,-0.03]	-0.07 [-0.09,-0.06]	-0.11 [-0.12,-0.10]	-0.13 [-0.14,-0.12]
age: 25-34 years	-0.01 [-0.01,0.00]	0.01 [0.00,0.02]	-0.01 [-0.01,0.00]	0.01 [-0.00,0.02]	-0.03 [-0.04,-0.02]	-0.05 [-0.06,-0.04]
age: 45-59 years	-0.01 [-0.01,0.00]	0.01 [0.00,0.02]	0.01 [-0.00,0.02]	-0.00 [-0.01,0.01]	-0.00 [-0.01,0.01]	0.02 [0.01,0.03]
age: 60+ years	0.02 [0.01,0.03]	0.05 [0.04,0.07]	0.06 [0.04,0.08]	-0.01 [-0.03,0.01]	0.00 [-0.01,0.02]	0.04 [0.02,0.06]
pension recipient (aged 60+)	-0.03 [-0.04,-0.02]	-0.03 [-0.05,-0.02]	-0.02 [-0.04,-0.01]	-0.01 [-0.03,0.02]	-0.01 [-0.03,0.01]	0.03 [0.00,0.05]
edu: primary school or less	-0.00 [-0.01,0.00]	0.00 [-0.00,0.01]	-0.01 [-0.02,-0.01]	0.02 [0.01,0.02]	0.01 [0.00,0.02]	-0.00 [-0.01,0.01]
edu: high school/matric	0.01 [0.00,0.02]	0.00 [-0.00,0.01]	0.00 [-0.01,0.01]	0.01 [-0.00,0.02]	-0.01 [-0.02,-0.00]	-0.01 [-0.02,-0.00]
edu: post-secondary	0.01 [0.01,0.02]	0.01 [0.00,0.02]	0.04 [0.03,0.05]	0.03 [0.02,0.05]	0.02 [0.01,0.04]	0.05 [0.03,0.07]
race: coloured	-0.03 [-0.04,-0.01]	-0.02 [-0.04,-0.01]	-0.05 [-0.06,-0.03]	-0.06 [-0.08,-0.03]	-0.11 [-0.13,-0.08]	-0.12 [-0.14,-0.10]
race: asian/indian	-0.02 [-0.05,0.00]	-0.01 [-0.04,0.01]	0.00 [-0.02,0.02]	-0.05 [-0.10,-0.01]	-0.12 [-0.15,-0.09]	-0.14 [-0.18,-0.09]
race: white	0.04 [0.03,0.04]	0.05 [0.04,0.07]	0.04 [0.03,0.05]	-0.01 [-0.03,0.00]	-0.04 [-0.06,-0.02]	-0.07 [-0.09,-0.04]
informal dwelling	0.04 [0.03,0.05]	0.06 [0.05,0.07]	0.08 [0.08,0.09]	0.11 [0.09,0.12]	0.14 [0.12,0.15]	0.15 [0.14,0.17]
rural	-0.01 [-0.02,-0.00]	-0.01 [-0.02,-0.00]	-0.01 [-0.02,-0.01]	0.04 [0.03,0.05]	0.02 [0.00,0.04]	0.00 [-0.01,0.01]
Province FE	YES	YES	YES	YES	YES	YES
N	105 296	109 657	105 269	83 997	93 468	87 360

Notes: own calculations using the OHS-GHS series weighted using the weights from Thornton & Wittenberg (2022b) on a sample of respondents aged 15 and older. Coefficients are marginal effects. Regression coefficient in boldface and 95% confidence interval in parentheses. Base groups for categorical variables are as follows: MS = married; MS*E = married or not employed; age = 35-44 years; edu = incomplete secondary schooling; race = Black African; prov = Western Cape.

B Detailed Oaxaca-Blinder decomposition output for the linear model

Table 9: Detailed decomposition output for the headship model

YVAR: Headship OB effect	OHS vs. Start GHS				Start GHS vs. End GHS				OHS vs. End GHS			
	C	W	I	C+W+I	C	W	I	C+W+I	C	W	I	C+W+I
WOMEN												
MS: never married	5.51	0.00	0.19	5.70	2.96	0.44	0.23	3.64	8.38	-0.01	0.97	9.34
MS: divsep	0.25	0.13	0.02	0.40	0.19	-0.24	-0.03	-0.08	0.42	-0.07	-0.02	0.33
MS: widowed	0.89	0.89	0.17	1.95	0.24	-0.58	-0.02	-0.36	1.09	0.40	0.09	1.59
E: employed	1.65	-0.07	0.22	1.80	-0.28	0.18	-0.04	-0.14	1.40	-0.15	0.41	1.66
MS*E: never married	0.06	0.43	0.01	0.50	-0.73	1.13	-0.27	0.13	-0.56	1.54	-0.34	0.64
MS*E: divsep	-0.05	0.04	-0.01	-0.01	-0.06	-0.05	0.01	-0.10	-0.10	-0.01	0.00	-0.11
MS*E: widowed	-0.19	0.12	-0.07	-0.14	-0.04	-0.01	0.00	-0.05	-0.22	0.09	-0.06	-0.19
age: \leq 35 years	-3.40	0.23	0.08	-3.08	-1.24	0.38	0.04	-0.82	-4.67	0.52	0.25	-3.90
age: 45+ years	0.59	0.03	0.02	0.63	1.23	0.06	0.06	1.35	1.77	0.06	0.16	1.98
pension recipient	-0.01	0.08	0.00	0.07	0.13	-0.01	0.00	0.12	0.09	0.07	0.03	0.19
edu: primary or less	0.59	-0.05	-0.08	0.46	0.08	-0.22	-0.02	-0.16	0.69	-0.14	-0.26	0.30
edu: matric or more	0.00	0.03	0.00	0.03	0.11	0.03	0.03	0.17	0.09	0.07	0.04	0.20
race	-0.27	0.15	0.02	-0.10	0.48	0.11	-0.01	0.57	0.23	0.24	0.00	0.47
dwell	0.19	0.00	0.00	0.19	0.79	-0.23	-0.13	0.43	0.98	-0.20	-0.16	0.62
rural	-0.33	0.00	0.00	-0.33	-0.15	-0.01	0.02	-0.14	-0.48	-0.05	0.06	-0.46
provinces	-0.21	0.03	-0.02	-0.20	1.06	-0.22	-0.03	0.81	0.88	-0.24	-0.03	0.61
_cons	-3.43			-3.43	-4.22			-4.22	-7.66			-7.66
Total	1.84	2.04	0.55	4.44	0.56	0.76	-0.17	1.15	2.33	2.12	1.14	5.59
MEN												
MS: never married	2.51	-0.76	0.07	1.82	3.35	-1.31	0.17	2.21	5.77	-2.20	0.47	4.03
MS: divsep	-0.01	0.04	0.00	0.03	0.16	0.06	-0.01	0.20	0.16	0.10	-0.02	0.23
MS: widowed	0.14	-0.05	0.02	0.10	0.18	-0.05	0.03	0.16	0.29	-0.12	0.09	0.26
E: employed	1.42	-0.04	-0.01	1.38	-0.69	0.68	-0.07	-0.09	0.72	0.49	0.07	1.29
MS*E: never married	-0.01	0.06	0.00	0.04	0.14	0.64	0.05	0.83	0.12	0.71	0.05	0.88
MS*E: divsep	0.00	-0.01	0.00	-0.01	-0.02	0.00	0.00	-0.02	-0.02	-0.01	0.00	-0.02
MS*E: widowed	-0.02	0.01	0.00	-0.01	-0.02	0.01	0.00	-0.01	-0.03	0.03	-0.02	-0.01
age: \leq 35 years	-2.25	0.05	-0.01	-2.21	-0.61	0.44	-0.01	-0.17	-2.85	0.44	0.04	-2.38
age: 45+ years	-0.21	0.01	-0.02	-0.22	1.20	0.04	0.02	1.26	0.96	0.05	0.03	1.04
pension recipient	-0.06	0.07	-0.01	-0.01	0.20	0.03	0.02	0.25	0.10	0.10	0.04	0.24
edu: primary or less	-0.03	0.01	0.00	-0.02	-0.20	0.02	0.05	-0.13	-0.26	0.02	0.10	-0.14
edu: matric or more	-0.54	0.12	-0.10	-0.52	0.12	0.20	0.05	0.37	-0.40	0.43	-0.18	-0.15
race	-1.91	0.03	0.16	-1.72	-0.29	0.14	-0.03	-0.18	-2.17	0.04	0.24	-1.90
dwell	0.44	0.07	0.01	0.52	1.45	-0.31	-0.18	0.96	1.85	-0.19	-0.17	1.48
rural	-1.49	0.05	-0.05	-1.49	-0.25	0.02	0.03	-0.20	-1.73	-0.13	0.18	-1.69
provinces	3.16	-0.01	0.04	3.18	-0.96	-0.05	-0.09	-1.10	2.22	0.08	-0.22	2.08
_cons	0.02			0.02	-3.39			-3.39	-3.37			-3.37
Total	1.17	-0.36	0.10	0.90	0.36	0.58	0.04	0.98	1.37	-0.16	0.67	1.88

Notes: own calculations using the OHS-GHS series weighted using the weights from Thornton & Wittenberg (2022b) on a sample of respondents aged 15 and older. C = coefficient effect; W = endowment effect; I = interaction effect. Effects are the change in conditional probabilities.

Table 10: Detailed decomposition output for the single-person household model

YVAR: SPHH OB effect	OHS vs. Start GHS				Start GHS vs. End GHS				OHS vs. End GHS			
	C	W	I	C+W+I	C	W	I	C+W+I	C	W	I	C+W+I
WOMEN												
MS: never married	0.43	0.07	0.01	0.52	0.64	0.19	0.05	0.88	1.05	0.23	0.12	1.40
MS: divsep	0.02	0.03	0.00	0.05	0.13	-0.05	-0.02	0.06	0.14	-0.02	-0.01	0.12
MS: widowed	0.20	0.13	0.04	0.37	0.29	-0.09	-0.03	0.18	0.45	0.06	0.04	0.55
E: employed	0.42	0.01	0.06	0.48	-0.24	0.08	-0.03	-0.19	0.20	0.03	0.06	0.29
MS*E: never married	0.60	0.17	0.10	0.87	-0.31	0.70	-0.12	0.27	0.33	0.61	0.20	1.14
MS*E: divsep	0.02	0.02	0.00	0.04	-0.04	-0.02	0.00	-0.06	-0.02	0.00	0.00	-0.02
MS*E: widowed	0.02	0.02	0.01	0.04	0.02	-0.01	0.00	0.02	0.03	0.01	0.01	0.05
age: \downarrow 35 years	0.66	0.04	-0.01	0.69	-0.95	0.04	0.02	-0.89	-0.31	0.09	0.03	-0.20
age: 45+ years	0.86	0.00	0.03	0.89	0.06	0.03	0.00	0.10	0.93	0.00	0.07	0.99
pension recipient	-0.18	-0.10	-0.06	-0.33	0.14	0.02	0.00	0.15	-0.07	-0.09	-0.02	-0.18
edu: primary or less	0.20	0.00	-0.03	0.17	-0.63	-0.04	0.17	-0.50	-0.53	0.01	0.20	-0.33
edu: matric or more	-0.14	0.05	-0.03	-0.12	0.28	0.03	0.07	0.39	0.09	0.14	0.04	0.27
race	0.23	-0.05	-0.02	0.16	-0.35	-0.06	0.02	-0.39	-0.13	-0.10	0.00	-0.23
dwll	0.37	0.00	0.00	0.37	0.52	-0.20	-0.08	0.24	0.89	-0.13	-0.14	0.61
rural	-0.20	0.00	0.00	-0.20	-0.13	0.06	0.02	-0.06	-0.33	0.03	0.04	-0.26
provinces	1.24	0.01	-0.01	1.23	-0.83	-0.08	-0.01	-0.92	0.42	-0.01	-0.09	0.31
_cons	-3.06			-3.06	1.87			1.87	-1.18			-1.18
Total	1.69	0.40	0.09	2.18	0.49	0.68	0.06	1.15	1.95	0.84	0.54	3.33
MEN												
MS: never married	2.21	0.09	0.06	2.35	2.59	0.28	0.13	3.01	4.73	0.25	0.38	5.36
MS: divsep	-0.04	-0.04	0.00	-0.07	0.20	-0.05	-0.02	0.14	0.17	-0.09	-0.02	0.06
MS: widowed	0.02	0.04	0.00	0.06	0.19	0.06	0.03	0.29	0.19	0.10	0.06	0.35
E: employed	0.84	-0.02	-0.01	0.81	-0.96	0.37	-0.10	-0.70	-0.13	0.26	-0.01	0.11
MS*E: never married	-0.08	0.05	0.00	-0.03	0.64	0.59	0.25	1.48	0.54	0.68	0.24	1.45
MS*E: divsep	-0.05	-0.01	0.00	-0.05	0.02	0.00	0.00	0.02	-0.03	-0.01	0.00	-0.03
MS*E: widowed	0.04	0.00	0.01	0.04	0.00	0.01	0.00	0.00	0.04	-0.01	0.02	0.05
age: \downarrow 35 years	-2.76	0.05	-0.01	-2.73	-1.34	0.24	0.03	-1.08	-4.10	0.23	0.07	-3.80
age: 45+ years	-0.05	0.00	0.00	-0.06	0.56	0.00	0.01	0.57	0.50	0.00	0.01	0.51
pension recipient	-0.01	-0.01	0.00	-0.02	0.15	-0.01	0.02	0.16	0.10	-0.01	0.04	0.13
edu: primary or less	-0.17	-0.06	0.02	-0.21	-0.39	-0.06	0.11	-0.35	-0.62	-0.16	0.23	-0.55
edu: matric or more	-0.43	0.01	-0.08	-0.50	0.32	-0.03	0.08	0.37	-0.13	0.07	-0.07	-0.13
race	-0.55	0.03	0.03	-0.49	-0.48	0.04	0.02	-0.42	-1.06	0.05	0.10	-0.91
dwll	0.94	0.10	0.03	1.07	0.19	-0.48	-0.02	-0.31	1.13	-0.27	-0.10	0.75
rural	-0.78	0.06	-0.03	-0.75	-0.95	-0.12	0.13	-0.94	-1.70	-0.17	0.17	-1.69
provinces	1.31	0.00	0.02	1.33	-0.31	-0.05	-0.09	-0.45	0.99	0.11	-0.22	0.89
_cons	1.09			1.09	1.14			1.14	2.23			2.23
Total	1.50	0.30	0.05	1.85	1.57	0.80	0.57	2.94	2.85	1.05	0.88	4.79

Notes: own calculations using the OHS-GHS series weighted using the weights from Thornton & Wittenberg (2022b) on a sample of respondents aged 15 and older. C = coefficient effect; W = endowment effect; I = interaction effect. Effects are the change in conditional probabilities.

C The Yun (2004) decomposition and detailed decomposition output for the logit model

Table 11: Detailed decomposition output for the household headship logit model

YVAR: L(Headship) OB effect	OHS vs. Start GHS				Start GHS vs. End GHS				OHS vs. End GHS			
	C	W	I	C+W+I	C	W	I	C+W+I	C	W	I	C+W+I
WOMEN												
MS: never married	10.21	-0.02	0.21	10.40	3.46	0.51	0.17	4.14	15.33	-0.07	1.12	16.39
MS: divsep	0.44	0.12	0.02	0.59	0.24	-0.22	-0.02	0.00	0.78	-0.06	-0.03	0.69
MS: widowed	1.69	0.76	0.19	2.63	0.57	-0.52	-0.03	0.03	2.43	0.32	0.13	2.88
E: employed	3.13	-0.10	0.25	3.28	-0.21	0.22	-0.02	-0.01	2.90	-0.20	0.54	3.24
MS*E: never married	-0.61	0.47	-0.06	-0.20	-0.72	0.99	-0.17	0.10	-1.53	1.59	-0.58	-0.53
MS*E: divsep	-0.01	0.04	0.00	0.04	-0.06	-0.05	0.00	-0.11	-0.09	-0.01	0.00	-0.09
MS*E: widowed	-0.20	0.16	-0.04	-0.08	-0.07	-0.03	0.00	-0.10	-0.28	0.11	-0.05	-0.22
age: \downarrow 35 years	-6.00	0.34	0.08	-5.58	-0.92	0.51	0.02	-0.39	-7.49	0.72	0.24	-6.53
age: 45+ years	1.27	0.03	0.03	1.33	1.52	0.08	0.04	1.64	3.45	0.07	0.19	3.71
pension recipient	-0.06	0.06	-0.01	-0.02	0.16	-0.01	0.00	0.15	0.12	0.05	0.02	0.19
edu: primary or less	1.06	-0.04	-0.09	0.93	0.09	-0.22	-0.02	-0.15	1.23	-0.10	-0.29	0.85
edu: matric or more	0.07	0.04	0.01	0.12	0.13	0.06	0.02	0.21	0.23	0.09	0.07	0.39
race	-1.00	0.21	0.04	-0.76	0.64	0.15	-0.01	0.78	-0.01	0.30	0.03	0.32
dwel	0.42	0.00	0.00	0.42	0.89	-0.28	-0.09	0.51	1.73	-0.23	-0.18	1.33
rural	-0.35	0.00	0.00	-0.35	-0.31	-0.04	0.02	-0.33	-0.81	-0.07	0.07	-0.81
provinces	-0.59	0.03	-0.02	-0.57	1.83	-0.29	-0.04	1.51	2.20	-0.31	-0.06	1.83
_cons	-7.76			-7.76	-6.85			-6.85	-18.03			-18.03
Total	1.72	2.11	0.61	4.44	0.39	0.87	-0.11	1.15	2.16	2.20	1.23	5.59
MEN												
MS: never married	1.43	-2.12	0.09	-0.60	0.34	-1.12	-0.04	-0.82	2.02	-0.02	0.84	2.84
MS: divsep	-0.01	0.11	0.00	0.10	0.01	0.05	0.00	0.07	0.03	0.00	-0.02	0.01
MS: widowed	0.06	-0.16	0.02	-0.08	0.03	-0.05	-0.01	-0.03	0.11	0.00	0.17	0.28
E: employed	1.40	-0.15	-0.02	1.23	-0.30	0.92	0.07	0.70	0.39	0.01	0.20	0.59
MS*E: never married	-0.37	0.20	-0.03	-0.20	0.06	0.43	-0.05	0.43	-0.16	0.01	-0.35	-0.50
MS*E: divsep	-0.01	-0.01	0.00	-0.02	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.01
MS*E: widowed	-0.01	0.03	0.00	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.01
age: \downarrow 35 years	-1.00	0.27	-0.02	-0.75	0.08	0.57	0.02	0.67	-0.61	0.01	-0.10	-0.70
age: 45+ years	0.00	0.04	-0.03	0.00	0.17	0.06	-0.01	0.23	0.43	0.00	0.06	0.49
pension recipient	-0.07	0.24	-0.04	0.13	0.06	0.02	-0.01	0.07	0.06	0.00	0.12	0.19
edu: primary or less	-0.03	-0.05	0.01	-0.07	-0.04	-0.01	-0.03	-0.09	-0.16	0.00	0.30	0.14
edu: matric or more	-0.42	0.63	-0.16	0.05	0.00	0.28	-0.01	0.27	-0.33	0.01	-0.70	-1.02
race	-1.46	0.09	0.27	-1.10	-0.03	0.19	0.02	0.18	-1.26	0.00	0.71	-0.56
dwel	0.29	0.30	0.02	0.61	0.19	-0.43	0.06	-0.18	0.72	0.00	-0.34	0.37
rural	-1.03	0.21	-0.09	-0.91	-0.03	0.02	-0.01	-0.02	-0.94	0.00	0.49	-0.45
provinces	2.37	-0.04	0.07	2.39	-0.24	-0.08	0.04	-0.28	1.35	0.00	-0.66	0.70
_cons	0.09			0.09	-0.23			-0.23	-0.53			-0.53
Total	1.23	-0.41	0.09	0.90	0.08	0.87	0.03	0.98	1.16	0.01	0.71	1.88

Notes: own calculations using the OHS-GHS series weighted using the weights from Thornton & Wittenberg (2022b) on a sample of respondents aged 15 and older. C = coefficient effect; W = endowment effect; I = interaction effect. Effects are the change in log odds.

Table 12: Detailed decomposition output for the logit single-person household model

YVAR: L(SPHH)	OHS vs. Start GHS				Start GHS vs. End GHS				OHS vs. End GHS			
	C	W	I	C+W+I	C	W	I	C+W+I	C	W	I	C+W+I
WOMEN												
MS: never married	0.48	0.10	0.06	0.64	0.01	0.50	0.00	0.51	0.44	0.42	0.10	0.96
MS: divsep	0.03	0.03	0.01	0.08	0.01	-0.10	0.00	-0.09	0.04	-0.02	0.00	0.02
MS: widowed	0.14	0.15	0.09	0.38	0.02	-0.17	0.00	-0.16	0.14	0.08	0.03	0.25
E: employed	1.13	0.08	0.52	1.74	-0.32	0.38	-0.03	0.02	0.63	0.23	0.38	1.23
MS*E: never married	-0.12	0.04	-0.07	-0.16	-0.05	0.13	-0.01	0.07	-0.16	0.16	-0.20	-0.20
MS*E: divsep	-0.05	0.00	-0.02	-0.07	-0.01	0.01	0.00	0.00	-0.05	0.00	0.00	-0.05
MS*E: widowed	-0.05	-0.01	-0.07	-0.13	0.02	0.01	0.00	0.03	-0.02	-0.01	-0.01	-0.05
age: \downarrow 35 years	1.30	0.03	-0.09	1.25	-0.62	0.06	0.01	-0.56	0.33	0.10	-0.03	0.40
age: 45+ years	0.81	0.00	0.11	0.92	-0.08	0.04	0.00	-0.04	0.61	0.00	0.11	0.72
pension recipient	0.06	-0.06	0.07	0.07	0.12	0.01	0.00	0.13	0.17	-0.07	0.10	0.20
edu: primary or less	0.30	0.01	-0.15	0.16	-0.45	-0.05	0.07	-0.42	-0.40	0.02	0.31	-0.07
edu: matric or more	-0.26	0.04	-0.18	-0.40	0.12	0.05	0.02	0.18	-0.10	0.14	-0.13	-0.09
race	0.25	-0.03	-0.03	0.19	-0.29	-0.07	0.01	-0.36	-0.18	-0.08	0.08	-0.19
dwel	0.02	0.00	0.00	0.02	0.14	-0.18	-0.01	-0.06	0.19	-0.11	-0.06	0.02
rural	0.09	0.00	0.00	0.09	-0.02	0.08	0.00	0.06	0.05	0.06	-0.01	0.10
provinces	1.00	0.01	-0.06	0.95	-0.50	-0.09	0.00	-0.59	0.25	-0.01	-0.12	0.11
_cons	-3.55			-3.55	2.41			2.41	-0.04			-0.04
Total	1.60	0.39	0.20	2.18	0.50	0.59	0.06	1.15	1.89	0.90	0.54	3.33
MEN												
MS: never married	1.90	0.17	0.50	2.57	1.63	0.45	0.21	2.30	3.45	0.45	0.62	4.52
MS: divsep	-0.03	-0.04	0.02	-0.06	0.06	-0.06	-0.01	-0.02	0.04	-0.10	-0.01	-0.07
MS: widowed	-0.02	0.07	-0.03	0.02	0.03	0.09	0.01	0.13	0.01	0.15	0.01	0.17
E: employed	0.46	-0.05	-0.03	0.38	-0.72	0.71	-0.19	-0.20	-0.43	0.55	-0.09	0.03
MS*E: never married	-0.26	0.03	-0.09	-0.32	0.13	0.16	0.12	0.42	-0.09	0.30	-0.08	0.12
MS*E: divsep	-0.02	0.00	0.01	0.00	0.02	0.00	0.00	0.02	0.01	0.00	0.00	0.01
MS*E: widowed	0.02	-0.02	0.04	0.04	0.01	-0.02	0.01	0.01	0.03	-0.04	0.04	0.03
age: \downarrow 35 years	-2.01	0.07	-0.13	-2.07	-0.22	0.33	-0.03	0.08	-1.98	0.34	-0.03	-1.68
age: 45+ years	0.12	0.00	-0.05	0.07	0.46	0.00	0.02	0.48	0.62	0.00	0.03	0.64
pension recipient	-0.02	-0.01	-0.03	-0.06	0.12	-0.01	0.03	0.15	0.10	-0.01	0.08	0.17
edu: primary or less	-0.41	-0.13	0.51	-0.02	-0.30	-0.11	0.21	-0.20	-0.75	-0.34	0.62	-0.46
edu: matric or more	-0.58	0.06	-0.93	-1.45	0.19	0.01	0.12	0.31	-0.30	0.21	-0.29	-0.38
race	-0.98	0.05	0.46	-0.47	-0.15	0.06	0.05	-0.04	-1.04	0.07	0.25	-0.73
dwel	0.29	0.10	0.09	0.49	-0.10	-0.44	0.03	-0.51	0.15	-0.26	-0.03	-0.14
rural	-1.09	0.09	-0.38	-1.38	-0.59	-0.13	0.20	-0.53	-1.59	-0.22	0.36	-1.45
provinces	2.57	0.01	0.11	2.69	-1.10	-0.08	-0.12	-1.30	0.98	0.18	-0.49	0.67
_cons	1.42			1.42	1.85			1.85	3.33			3.33
Total	1.37	0.41	0.07	1.85	1.32	0.97	0.65	2.94	2.53	1.27	0.98	4.79

Notes: own calculations using the OHS-GHS series weighted using the weights from Thornton & Wittenberg (2022b) on a sample of respondents aged 15 and older. C = coefficient effect; W = endowment effect; I = interaction effect. Effects are the change in log odds.

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Founded in 1975, the Southern Africa Labour and Development Research Unit (SALDRU) is a research-based social responsiveness initiative housed in the School of Economics at the University of Cape Town.

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