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# **Gender and Household Formation in a High-Inequality Developing Country**

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## Abstract

Increased household formation, and its corollary of decreasing household size, is a global demographic trend with important consequences for human and environmental welfare. There are a host of potential demographic, economic, and institutional levers on household formation, many of which vary considerably across the developed and developing world. Understanding the factors driving household formation in both settings is therefore an important topic. In South Africa, household formation has been relatively quick by global standards. Yet, intensive income inequality, widespread poverty, and open unemployment would lead us to expect a slower trend. We empirically investigate a household headship model, by gender, to uncover the main drivers with special focus on the institutional factors that make South Africa stand out. These are the country's recent history of racial segregation, and, marriage rates that are much lower than would be expected in such a gender-conservative setting. We find that although men are still more likely to head households than women, women have increased the rate at which they form households more than men when the usual demographic factors are accounted for. The period we study is 1995-2011, and by the end of this period, most female heads had never been married. Headship rates have increased most amongst older female age cohorts and we find preliminary evidence that the generations of Black women who were prime-aged at the end of apartheid are the most likely to head households compared to both their younger and older counterparts. These women are conceptualised as taking advantage of their new political freedom whilst, like young adults around the world, younger cohorts of women of all population groups in South Africa are delaying moving out in a context of poor economic conditions.

**Keywords:** household formation; gender; apartheid

# 1 Introduction

All over the world, people are forming households faster than population growth, leading to a trend of globally declining household size (United Nations 2017, Bradbury et al. 2014, WHO 2011). More and smaller households pose a challenge to human and environmental welfare in a myriad of different ways. Smaller households undermine economies of scale, making it comparatively more expensive to access the same household goods and services for an individual member. This is especially pertinent in poorer countries since poverty and inequality are effectively measured at the household level. A structural trend in household size has important implications for our construction of equivalence scales and our understanding and measurement of welfare in society in general. On a macro level, more households threaten sustainable access to affordable modern energy and other basic services required for decent living conditions; such as, shelter, water, and sanitation (United Nations 2017, Bradbury et al. 2014). This pattern makes it more difficult for governments to accurately predict and adequately provide for changing household demand (Bradbury et al. 2014). Household formation in developing countries is relatively less well-understood than in the developed world. This matters since developing countries are typically home to different types of household compositions, such as three- or skip-generational households (United Nations 2017). Developing countries are often also poorer and living and employment conditions are less stable. Understanding how people sort themselves into households in these contexts therefore becomes an important research topic.

South Africa is an interesting case study in this regard because levels of both poverty and income inequality are high. Having only recently emerged from decades of racial segregation under apartheid rule in which economic advantage was consolidated along racial lines, South Africa has possibly the highest income inequality levels in the world. The Gini coefficient stood at 63 in 2011 and poverty remains widespread despite South Africa's status as a middle-income country (Statistics South Africa 2017). Using the World Bank \$1.90 a day (2011 PPP) poverty line, 56 percent of the population were living in poverty in 2011. At the same time, average household size has declined rapidly over the post-apartheid period, even by global standards. Household size reduced from 4.6 persons in 1995 to 3.6 in 2011; a fall of a full person in just 16 years. To put this in perspective, household size in France took 43 years to drop by less than a person from 3.1 persons to 2.3 between 1968 and 2011 (United Nations 2017). In an example from the developing world, it took Kenya 45 years for household size to drop by just over a person from 5.3 persons in 1969 to 4 in 2014 (United Nations 2017). As such, household formation in South Africa is on the increase: the census-counted population grew by 28% between 1996 and 2011, the number of households grew by 62% - more than twice as fast (Statistics South Africa 2012a).

This trend is having a measurable impact on welfare. Wittenberg et al. (2017) and Harris et al. (2017) show that household formation is undermining access to services by outpacing the rate at which the state can connect households to the electricity grid, for example. Finn & Leibbrandt (2016) shows that changing household compositions accounted for 56 percent of poverty entry and 59 percent of poverty exit between 2008 and 2015 using longitudinal data (and over a period where household size was falling on average). What is motivating people to form households at this pace if it this trend can demonstrably be shown to have reduced their welfare? Falling fertility and rising aggregate income have no doubt played their part. The total fertility rate is estimated to have been falling since the 1960s and, in 2005, the total number of live births peaked and started to decline (Statistics South Africa 2015). Average household and wage income has increased, especially as the post-apartheid government set-up a generous schedule of social transfers which have been shown to have had a considerable impact on poverty reduction (Leibbrandt et al. 2010). Multi-dimensional poverty has diminished several times more than income poverty through state provision of free basic services and housing (Finn et al. 2013). Wittenberg & Collinson (2017) shows that access to free government housing was partly behind rapid household formation in a rural local area in the Mpumalanga province of South Africa. Fewer children with less need for childcare and being richer (in monetary or in-kind terms) are two good reasons why a population of the same size would sort itself into more households.

What is motivating people at a micro-level to move or stay attached to the household they are

already in becomes an interesting research question in this context. In many cases, the reasons align with those in the developed world. Simkins (2017*a,b*) finds that getting older, getting a job, or getting married are the three main reason young South Africans leave home using cohort analysis of the 2015 General Household Survey. Keller (2004) and Ebrahim et al. (2013) jointly model the labour market and household composition decision, conclude these two decisions are tightly interlinked, and agree with Simkins (2017*a,b*) that gaining employment is significant for moving out. However, if some of the main reasons South Africans move out of home are related to getting a job or getting married, then this could be expected to mitigate the pace of household formation since both of these trends are weak or weakening. Marriage rates have been steadily declining over the past two decades (Posel & Rudwick 2013) and South Africans have experienced very high levels of open unemployment and income inequality throughout the post-apartheid period (Leibbrandt et al. 2010). Broad unemployment has stabilised at over 30 percent since about 2010 (DPRU 2017) and South Africa has no unemployment benefit (Leibbrandt et al. 2010).<sup>1</sup> Indeed, research shows that the unemployed tend to ‘stay at home’ and remain attached to the resources they do have access to, rather than strike out in a labour market where chance of finding work is comparatively lower than most of the world (Klasen & Woolard 2009, Keller 2004).

Income may have risen in the aggregate, but high inequality means it has not done so evenly for everybody. Findings from China suggest that higher local income inequality slows household formation (Yu 2017): Household formation for a given age cohort was slower in cities where there was a bigger gap between that cohort’s income and the median income in the city.<sup>2</sup> Serious income-constraints indicated by poverty levels over 50 percent (Statistics South Africa 2017) would lead us to think South Africans would band together into bigger households to take advantage of better economies of scale. Indeed, income appears to have a more differential impact on household formation in the developing world compared to what is typically found in the developed world. In the developed world, household income increases chance of moving out or upgrading housing type (Ermisch & Di Salvo 1996), whereas in Pakistan (Pasha & Lodhi 1994) and South Africa results are more ambiguous (Edmonds et al. 2005, Keller 2004). Much research on this topic in South Africa has exploited the exogenous variation brought about by the advent of pension-age. Instead of being contributory, the state pension is a monthly government grant to which all South Africans are entitled after 60 years of age. Although the onset of pension income does seem to translate into more bargaining power for the recipient (Ambler 2016), it does not necessarily translate into smaller households as it unambiguously does so in the developed world. Edmonds et al. (2005) and Ranchhod (2017) show that pension receipt prompts a reorganising of the household around the pension recipient: dependents (young children) move in and prime aged women with labour market advantage, move out. Keller (2004) agrees that a pension recipient in your household, especially female pension recipient, delays moving out. On balance, these findings may need to be unpacked a little more: in China personal income had the expected positive effect on headship (Yu 2017), and in South Africa it was other household income excluding personal income that had an insignificant and ambiguous effect on household formation (Keller 2004). Similarly, Ermisch & Di Salvo (1996) found in Britain that increased personal income encouraged moving out whilst increased parental movement delayed it. This discussion suggests that there is still much about household formation in the developing world and in South Africa that we don’t yet fully understand.

One gap in the literature on South African household formation is the study of institutional factors on people’s decision to stay or move. There is a body of literature on South Africa’s declining rates of marriage (Posel & Rudwick 2013, Madhavan et al. 2013), for example, as well as, on trends in female labour force participation (Casale & Posel 2002, Ntuli 2007); but, little on how these interact in the context of the household formation research agenda. Female headship has climbed in the post-

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<sup>1</sup>The only form of unemployment welfare is the Unemployment Insurance Fund which is a contributory insurance fund that will provide pay-outs to the unemployed for a maximum possible period of eight months, dependent on how long an individual has been employed at the same employer. The Fund also only covers those who were previously employed meaning it does not cover most of the unemployed (Leibbrandt et al. 2010)

<sup>2</sup>This was rationalised by the affordability of moving out being relative to the income of all the other people also seeking to move out in the same city. Essentially, housing prices can be expected to rise as the market adjusts to a few people having several times more buying power than everyone else.

apartheid period despite women only making modest advances in labour market participation. The share of never married female heads is very high a traditional developing country: in 1995, 26 percent of female heads had never been married and by 2011, this share was 42 percent and the most prevalent marital status for female heads. These shares are more comparable to developed country marital profiles for female heads, than developing country ones. Posel & Rudwick (2013) argue widespread male unemployment combined with the cultural practise of bridewealth is inhibiting marriage in South Africa. This then is a demonstrable example of how extreme income inequality and a stagnant labour market interact with institutions to interrupt a fundamental demographic process.

Another very important institution in South Africa is political regime. The country lived under apartheid rule by a White minority government between 1948 and 1994, and a democratic government upholding human rights, thereafter. Racial segregation and exploitation under the apartheid regime imposed rules about where people could live and were most restrictive for Black African women (Smith 2003, Venter 1995). These rules were repealed in the mid-90s and no doubt profoundly affected the life trajectories and living arrangements of South Africans. Not only did the new democratic government do away with legal restrictions on where people could live, they also embarked on policies that could be expected to hasten people's household formation. These were the previously-mentioned schedule of social transfers, in general, and more specifically to household formation, free provision of basic services (e.g. water, electricity), housing subsidies and free government housing that materially reduce the cost of moving out. This rich context yields ambiguous expectations about the formation process and suggests that there is much we have yet to unpack.

In this paper, we think about three relevant institutions - regime, marriage, and gender - and how they interact with the country's poor economic conditions. We run a decomposition on household formation to first characterise the nature of the process. We find that whilst population growth accounts for the bulk of new household formation, there is a genuine increase in the rate at which people are forming households, especially women. We then run a series of regressions on household headship to empirically uncover the main factors associated with people forming their own households or staying where they are. In agreement with the authors above, we find ambiguous effects of income: in restrictive economic conditions, people are opting to remain attached to the resources they have. We also try to separate out differential effects of various types of income. Personal earnings increase chance of moving, whilst living with access to a pension recipient, especially a female recipient, delays it. Institutional effects varied by gender: the decline in the marriage rate increased chance of female headship over time, but had a slowing effect on men's chance of headship. Women also appear to have been much more responsive in terms of household formation to regime change. Black African women who were prime-aged at the time of the first democratic election are still the cohorts of women most likely to be heads. The trend for Black African men is much less obviously related to the election and white people seem unaffected. We can also imperfectly detect the role of fertility: the rapid reduction in the average number of children per household positively contributed to female, but not male, household formation over time. Fewer women are getting married and improvement in female labour force participation is debatable. This means women's access to income appears to be weakening or ambiguous, and yet female headship is increasing at a rate over and above what could be expected from their population growth and change in their age structure. This is a puzzle that further study needs to interrogate.

In the next section we discuss the theory behind household formation and our conceptual framework. Thereafter, we introduce the data and follow up with two descriptive sections using the data: the first describing household evolution in South Africa, and the second discussing in detail trends in the three institutional frameworks described above. We then describe our empirical strategy and follow up with the results of the decomposition and the regressions.

## 2 Theory of household formation

### 2.1 Economics

A fundamental intuition behind why we form households is to share resources (Fafchamps & Quisumbing 2007). This input is fundamental enough to characterise common definitions of a household such as, eating from a common pot (sharing food), income sharing, co-residence (sharing living quarters), and productive co-operation (sharing labour and its effects) (Spiegel et al. 1996). Households are also the site of most of our consumption which can be further broken down into consumption of public and private goods and services. The size of the household mediates the cost of household public goods via economies of scale: the cost of household public goods becomes cheaper when spread across more household members. However, increasing household size starts to incur a cost in terms of privacy or congestion. Fafchamps & Quisumbing (2007) therefore conceptualise individuals as forming households as the site of the production and consumption of household public goods and choosing optimal household size by a trade-off between economies of scale and preferences for privacy. This intuition is more formally expressed by Ermisch (1981) who models the household as a technology that transforms market goods, non-market time, and household composition into individual utility. The utility of household members is impacted by household size in three ways: the pooling of expenditure to buy goods that are locally public, but congestible, e.g. housing; the pooling of time to produce household services, e.g. food preparation; and, preferences for privacy.

In his classic formulation, Becker (1981) treats married couples as a firm who employ household and labour market production to maximise a household utility function. This yields different solutions for men and women since male and female labour are modelled as substitutes. Women specialise in household production and men in labour market production due to female biological advantage in reproduction (Lundberg 2001). Becker's formulation has been updated by authors such as Chiappori et al. (1988)'s collective rationality, McElroy & Horney (1981)'s co-operative Nash bargaining model, or Lundberg & Pollak (1993)'s separate spheres. The key departure from Becker by these authors is starting with individual, as opposed to household, utility and the incorporation of bargaining power. Bargaining power is modulated via labour market outcomes, and options in the re-marriage market, for example. Almost all of these models are able to describe female disadvantage as originating in the household (Lundberg 2001). In applying these ideas to a developing world context, Baland & Ziparo (2017) emphasise that increased uncertainty in living conditions makes it harder for household members to achieve Pareto efficiency. More uncertainty in job, health, and living conditions make it harder to commit to a certain living arrangement for a given period, making it harder to optimise over the long run and leading more instability in living arrangements in general in the developing world.

Overall, there is therefore a highly economic aspect to the household represented both by how it supports our consumption and how it modulates the cost of this consumption. Economic thinking therefore provides us with three key margins that would motivate people to form their own households: increasing income, decreasing specialisation within the household, and stronger preferences for privacy. Increasing income makes household public goods more affordable with less need for more household members to reduce the cost through better economies of scale. Reduced specialisation encourages household formation by making it less necessary to have different household members skilled in certain household tasks if those tasks can more easily be performed by the same person. Stronger preferences for privacy mean marginally more disutility from an additional household member, meaning people will opt to move out and form their own households at a faster pace. In this regard, any variables affecting the budget constraint, or cost of moving come to the fore. Household size is important because it captures the trade-off between economies of scale and preferences for privacy. Advancing technology affects both price and specialisation by making it cheaper and easier to produce or buy household public goods in terms of cost and time (Greenwood et al. 2005). Specialisation is further reduced by weakening the degree to which male and female labour are substitutes. This can happen when each gender starts working in the 'sphere' of the opposite; that is, when women are increasingly able to earn labour market income and when men increasingly participate in household work.

## 2.2 Institutional

However, there is more to the process of household formation than just income and specialisation. A key point is that many of these social processes are informed by an institutional structure, such as marriage and social norms. Goldscheider (1997) conceptualises household formation as having two axes: a parent-child dimension shaping the launch of the family and a male-female dimension shaping the destination; with individuals optimising along both axes. The parent-child axis speaks not only to individual female fertility, but also to the burden of obligation that exists between adult children and their older parents. In the developed world this link has been weakened by the expansion of social protection and public and private pension schemes (Goldscheider 1997). As a result, there is an increased share of elderly people living on their own which has become a topic of extensive concern and investigation in demographic research (WHO 2011). In the developing world, where social protection is less comprehensive, the burden of care on adult children for the parents remains salient. Three-generational and other non-nuclear household compositions are much more common in the developing world, for example (United Nations 2017).

The male-female axis relates to union-formation and gender roles. The union formation and the household formation literature are closely related. Ermisch & Di Salvo (1996) show that union formation and dissolution are primary reasons why households form and dissolve. Union formation itself is richly informed by social norms and customs with knock-on effects for the decision to move or stay. For example, the breakdown in conventional gender relations as women entered the workplace in the developed world is understood to have impacted the decline in marriage rates, increase in age at first marriage and increase in cohabitation (Goldscheider et al. 2015, Esping-Andersen & Billari 2015). How society views pre-marital cohabitation, births out of wedlock, divorcees, and women's position in society in general will affect decisions to stay or move via a 'social price'. These norms are influenced by culture and religious practises, for example, which differ in their emphasis across developed and developing countries. In the developing world, women get married at much younger ages than in the developed, even as soon as immediately after menarche (Mensch et al. 1998). These young wives then move directly from the parental home into the home of their husband. The interval between puberty and marriage usually lasts longer for boys than for girls, who need to take time to acquire resources to set up the marital home. In a traditional society, a typical trajectory would be for men to move out of home first and establish themselves with (usually younger) women remaining behind in the parental home. Women then join the men later upon marriage (Mensch et al. 1998).

We could expect household formation to increase if there is a weakening of the institution of marriage or a shift towards more egalitarian gender relations. Marriage is, or is at least intended to be, a permanent relationship status that would traditionally define a nuclear household and prompt many women to leave home for the first time. The influence of marriage on household formation is then weakened by increasing divorce and cohabitation. Although people also form households to cohabit, cohabitation can potentially lead to more household formation because it is a less permanent, less regulated, and more easily reversible status than marriage (Perelli-Harris et al. 2010). Increasing divorce rates have been cited as a reason for declining average household size in the developed world as bigger households split up into smaller ones (Peichl et al. 2012). Some scholars have also found that female labour supply and union formation respond to changes in divorce law (Bargain et al. 2012, Voena 2015), for example, implying the regulatory environment plays a role. A shift towards more egalitarian gender norms is usually associated with increased female labour force participation, reducing the degree to which male and female labour are substitutable and putting downward pressure on household size (Lundberg 2001). In the West, the trend of more women in the workplace has coincided with a trend of delayed marriage and has even been linked to women choosing more egalitarian partners (Sevilla Sanz 2005). Essentially, economic and institutional processes are highly interlinked.

## 2.3 Socio-Demographic/Preferences

Finally, economic and institutional factors are traded off against individual preferences, such as those for privacy and having children. Age is a crucial proxy for capturing preferences since preferences are thought to fluctuate quite seriously along the age axis (Sweet 1990). As we get older, we want more independence and so we move out of the parental home. We then potentially want a spouse and our own children, who then, themselves, move out, and so the household expands or contracts accordingly. Household formation could be expected to increase if preferences gravitate towards wanting more privacy or fewer children, for example.

In summary then, there are three main aspects to household formation: preferences, economic factors, and institutional factors. These can be very broadly summed up by the three main reasons Simkins (2017*a,b*) identified that young people move out of home in South Africa: getting older, getting a job, and getting married. Our main research question is about the factors associated with people staying or moving and how these have changed over time in the post-apartheid period. We set up a model of the micro factors affecting why people form households based on these three categories which we evaluate using regression analysis of South African household survey data. Economic variables that will affect the decision to move out of home include income, employment status, social protection, housing prices and other cost-affecting variables. Preferences and other socio-demographic factors are proxied by age, child-rearing decisions, and household size. As explained in the introduction, we are particularly interested in how the three institutional factors of gender, regime, and union formation interact with the country's poor economic conditions. We set up gender as our overarching framework: the household formation of men and women are modelled separately because economic and institutional theory and context from South Africa would imply different trajectories by gender (Esping-Andersen & Billari 2015, Maisiri et al. 2016). The section below introduces the data.

## 3 Data

Census and national household survey data are used to perform the analysis described in the methodology section. South Africa has census data for 1996, 2001 and 2011. We make use of the ten percent samples for each of these years; as well as, the Community Survey for 2007.<sup>3</sup> Out of the set of household survey data sets collected by South Africa's national statistics bureau, Statistics South Africa (SSA), the most appropriate to use for counting people and households is the October Household Survey (OHS) and the General Household Survey (GHS) (Statistics South Africa 2010-2013, 2011-2018*a*). The OHS is the only large nationally representative annual household survey undertaken by SSA in the period 1993-1999. Additionally, the OHS collected data about relationships within the households, defined in reference to the household head (e.g. spouse of the head, child of the head). After 1999, the OHS was conceptually split into the Labour Force Surveys (LFSs) and General Household Surveys, with the former focusing on economic outcomes and the latter on socio-demographic outcomes. The GHS - which only launched in 2002 - is therefore the survey that inherited questions about household relationships from the OHS, making it the logical choice for the latter half of the period.

Both the OHS and the GHS are cross-sectional and survey approximately 30 000 dwelling units based on about 3 000 Primary Sampling Units drawn from the Master Sample of enumerator areas used during the most recent census at the time. Exceptions are that the 1996 and 1998 October Household Surveys only surveyed about 16 000 and 20 000 dwelling units, respectively. A stratified, two-stage cluster sampling design is employed in each case, stratified at the provincial level.<sup>4</sup> Data is 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. Between these two surveys then,

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<sup>3</sup>Community Surveys are larger-than-usual national household surveys conducted in lieu of a census due to capacity constraints (Statistics South Africa 2007*b*). The 2007 Community Survey had a sample size of 949 thousand people and 246 thousand households, making it about three times the size other South African household national household surveys (Statistics South Africa 2007*a*)

<sup>4</sup>The 2004 Master Sample was stratified at the district council level.

we have large samples of nationally representative cross-sectional data on individuals, households, and their structures for every year in the period 1993-present, with the exception of 2000 and 2001. We use the OHS and GHS as the source material to create a stacked OHS-GHS series across which we harmonise variable definitions, but with a new weight calibrated in Thornton & Wittenberg (2018). The newly calibrated cross-entropy weight is congruent with sampling practise (unlike the originally released weights), more conceptually coherent, and produces more consistent estimates.

One concern about the quality of the data, especially for the type of analysis this paper is performing, comes from Kerr & Wittenberg (2015). These authors reveal the undersampling of small households in the OHS period which led to improbable jumps in the number of small households between the 90s and early 2000s. If the data are not capturing small households properly at the beginning of the period, then the overall analysis will exaggerate the decline in household size over time. Two considerations mitigate this concern. The first is that the new cross-entropy weight employed in the OHS-GHS is calibrated to officially released population and household counts, meaning it will yield a more reliable trend in average household size than the original weights (Thornton & Wittenberg 2018). Analysis of how household formation behaviour is changing may still be biased, though, if the series is not accurately capturing certain types of households. It does appear that the series remains biased in the same way across time. Comparison of the unweighted data from the 2011 GHS and the 2011 census reveals that small households are still undersampled relative to larger ones in 2011, suggesting the same type of undersampling that began in the OHS continued in the GHS.<sup>5</sup> The *weighted* samples in both 1996 and 2011 continue to underestimate the number of single person households compared to the census; although, as mentioned, average household size is unbiased.

This means that our estimates overall from an OHS-GHS series may be biased in some way. However, we trade off this weakness against the benefits of having a more complete series over time reflecting year-on-year change, having a more cohesive weight, and having better income data. Only bracketed income data is available in the census which is a limitation given the importance of income for household formation. There are also shortcomings for the income variables in the OHS-GHS discussed later on, but we can capture substantially more variation and income types. A key advantage of the series over the census, as well, is having the previously-mentioned cross-entropy weight which is coherent between person and household files. The census is released in ten percent sample files with both a person and household weight which are calibrated differently and never equal to each other.<sup>6</sup> Separate weights like this do not follow sampling practise and are conceptually incoherent in important ways for analysis of household formation for reasons detailed in Thornton & Wittenberg (2018). Essentially, there are shortcomings to both the census data and the OHS-GHS series, but having a coherent weight in the OHS-GHS series means we can at minimum perform coherent multivariate regression analysis on the OHS-GHS, which we cannot do for the census in the same way. An illustrative example of how separate weights pose a problem is presented shortly in the next section. When we judge it to be more appropriate we use the census, but our main results are performed using the cross-entropy weighted OHS-GHS series.

## 4 How have households changed in post-apartheid South Africa?

Figure 1 plots the total number of households in each year of the post-apartheid period for which we have data using the OHS-GHS series and census data. Household membership is defined here in a

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<sup>5</sup>Kerr & Wittenberg (2015) explain that the undersampling in the OHS was mainly due to how enumerators dealt with multiple households in a dwelling unit. Instead of sampling all the households, enumerators were meant to randomly select one household, but systematically ended up sampling larger households leaving smaller households comparatively undersampled. This practise changed in 1999 and in the GHS so that enumerators then sampled all households per sampling unit. The point being that, even though the ‘problem’ of enumerator practise was fixed, small households were still undersampled in the GHS. Smaller households are harder to sample in general than larger ones, just because you are more likely to find at least one person at home to interview in a household of, say, five people, than in a one person household.

<sup>6</sup>In 1996, 0.03 percent of observations had equal person and household weights and in 2011, zero observations.

restrictive way: individuals need to have slept in the dwelling unit for the past four nights.<sup>7</sup> This definition is preclusive of a sociological understanding of a household. Spiegel et al. (1996) coined the term ‘stretched household’ to account for circular labour migrancy in South Africa which is a prominent feature of the economy, structured during the apartheid era, but still relevant today. Households with migrants are considered stretched across space because migrants live most of the year in close proximity to their usually urban job and send remittances back to their usually rural homestead, only returning in person a handful of times a year. Migrants are still considered members of the rural home because of their strong familial ties and income sharing. The problem this poses for the analysis of household formation is that many households may be ‘double-counted’ if they have a migrant in them and, if migrancy is expanding, the increase in household formation could be an ‘optical illusion’. However, Posel (2009) finds that the share of households sending a migrant fell from 18.8 percent in 1993 to 10.9 percent in 2008 suggesting migrancy is not the driving force behind household proliferation in this period.<sup>8</sup> Moreover, the survey definition of a household is still a useful configuration for our purposes. This definition is essentially measuring immediate living arrangements which has direct bearing on welfare and allows us to study how people organise themselves into households for their day-to-day lives. If most of a migrant’s life, for example, is spent living by himself in an urban area apart from his family members, then this is a relevant setting - if not the only setting - in which to locate him for understanding his well-being and livelihood strategies.

Returning to Figure 1, survey weights make a demonstrable difference to the counts which is behind our motivation for using the cross-entropy weighted OHS-GHS series. The cross-entropy weight is the same for people and the households they live in, in alignment with sampling practise. This is not true for the publicly released person and household weights in the OHS-GHS, nor is it true for the census ten percent samples. As such, the same data sets yield different household counts using different weights. Such dual-weighted data poses the problem of how to weight analyses that involve variables measured at both the person- and household-level at the same time, e.g. marital status versus household energy source for lighting. The person-household coherence of the cross-entropy weight overcomes this problem. In addition, the cross-entropy weight is benchmarked to officially released estimates of the household stock and person population from SSA. As can be observed in Figure 1, the cross-entropy weighted series is in agreement with the household-weighted census counts. The weight is similarly in agreement with the census person-weighted population counts (Thornton & Wittenberg 2018). The cross-entropy weighted series will allow for analysis that is consistent between the person- and household level whilst being as accurate as possible.

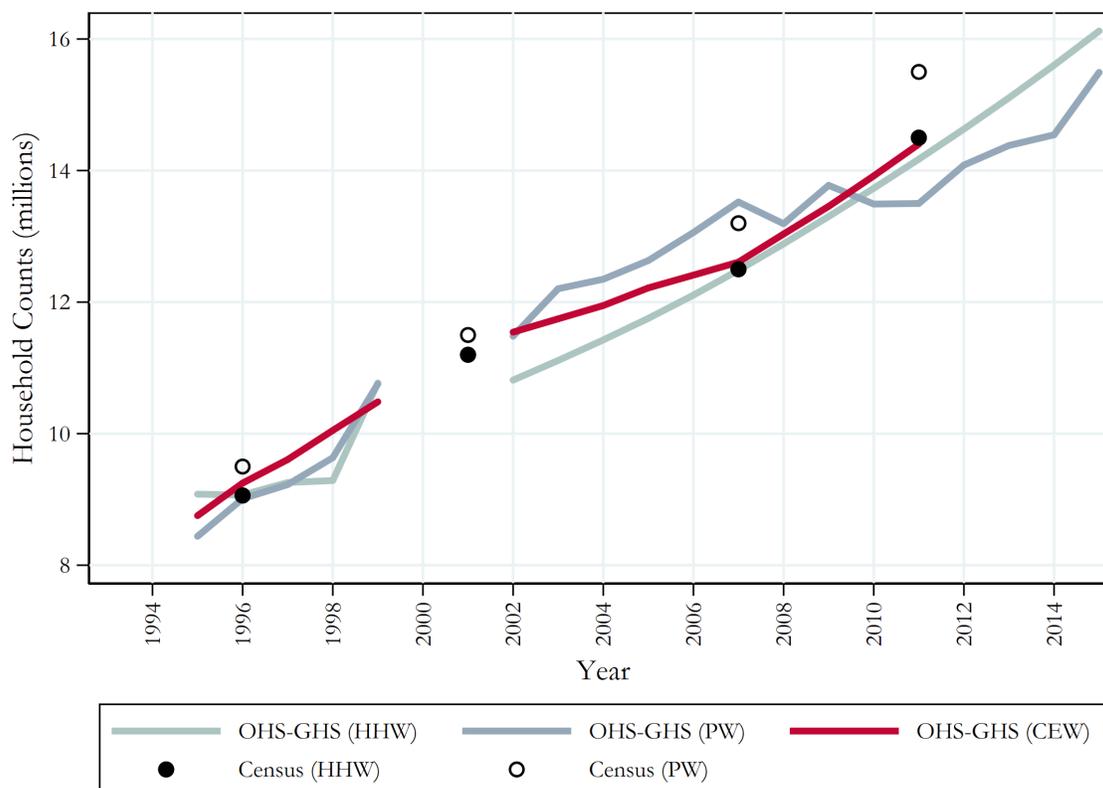
Turning to the trend in Figure 1, we observe that there has been a proliferation in the number of households over the post-apartheid period, according to all data sources. The total number of households grew from 9 million households in the 1996 household-weighted census to 16 million in the household-weighted 2015 GHS. Figure 2 then uses the OHS-GHS series to describe the trends in population growth, household growth, and average household size over the period for which the cross-entropy weight is available, which is 1995-2011. The household growth rate is always above the population growth rate in Figure 2, indicating the faster pace of household, compared to population, growth.<sup>9</sup> There were 41.3 million people living in 9 million households in 1996 and 51.6 million people

<sup>7</sup>A dwelling unit is defined as any structure, part of a structure, or series of structures, that comprises a household. In this respect it can be a free-standing house, an apartment in a block of flats, or a group of rondavels (Statistics South Africa 2012b).

<sup>8</sup>However, it is the living arrangements of migrants at their destination, rather than their sending household, that also matters. For example, a household could send two migrants who may have lived together fifteen years ago, but today they live separately. These patterns are much harder to pick up because it is difficult to identify migrant destination households in South African household survey data.

<sup>9</sup>Note that the shape of the household growth rate mirrors fertility and mortality to an extent. The total number of live births peaked and turned down in 2005 (Statistics South Africa 2015) and mortality was also increasing until 2006 before turning down thereafter (Statistics South Africa 2018b). The uptick in the household growth rate coincides with the increased expansion of antiretroviral medication to a population which had increasingly come under the grip of the HIV/AIDS epidemic in the 1990s and early 2000s (Karim et al. 2009). Antiretroviral medication became available for free in 2003 and in 2006 AIDS-related deaths turned down for the first time since the 1990s (Karim et al. 2009, UNAIDS 2017).

**Figure 1:** Household Counts in using Differently Weighted Data Sets in the Post-apartheid Period, 1995-2015



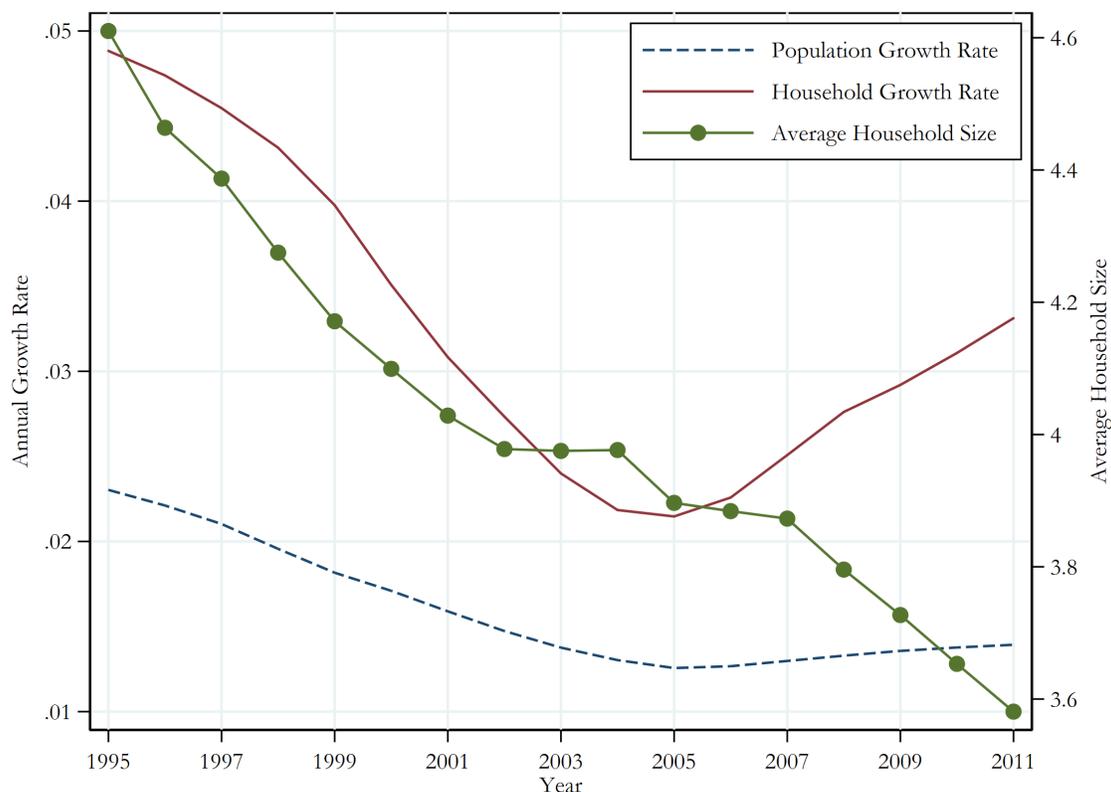
Notes: OHS-GHS = stacked series of the October Household Survey and General Household Survey. Census = Census ten percent samples plus Community Survey in 2007. Surveys weighted according to HHW = household weight; PW = person weight; and CEW = cross-entropy weight.

living in 14.5 million households in 2011, according to the census. The household stock grew by more than double population growth: the population expanded by 28 percent between 1996 and 2011, while the number of households mushroomed by 62 percent. Consequently, average household size fell from 4.6 persons in 1995 to 3.6 in 2011; a fall of a full person in just 16 years. As mentioned in the introduction (Section 1), this drop is rapid compared to the rest of the world (United Nations 2017).

Figure 3 plots the change in age-specific headship rates between 1996 and 2011, by gender. Men are more likely to be heads in general, and age-specific headship has remained relatively consistent. Noteworthy increases for men happened amongst those aged 20-29 years and the those over 80 years. On the other hand, women aged 45 and older are all much more likely to be heads in 2011 compared to 1996. The female headship rate even overtook the male headship rate for the oldest age category, although higher male mortality may be a factor here. In general, the share of female heads increased over the period from 38% in 1996 to 41% in 2011. This is some preliminary evidence that there is an important gender and generational aspect to South African household formation.

There has also been important compositional change, reported in detail in Table 1. The average number of children per household declined by a third between 1996 and 2011, and the share of households with any children resident reduced by about a quarter. This suggests the effects of falling fertility are impacting household composition. However, the number of adults also declined from 2.98 on average per household to 2.51 over the same period (16%). There was a further decline in the

**Figure 2:** Household and Population Growth Rates and the Trend in Average Household Size over the Post-apartheid Period in South Africa, 1995-2011

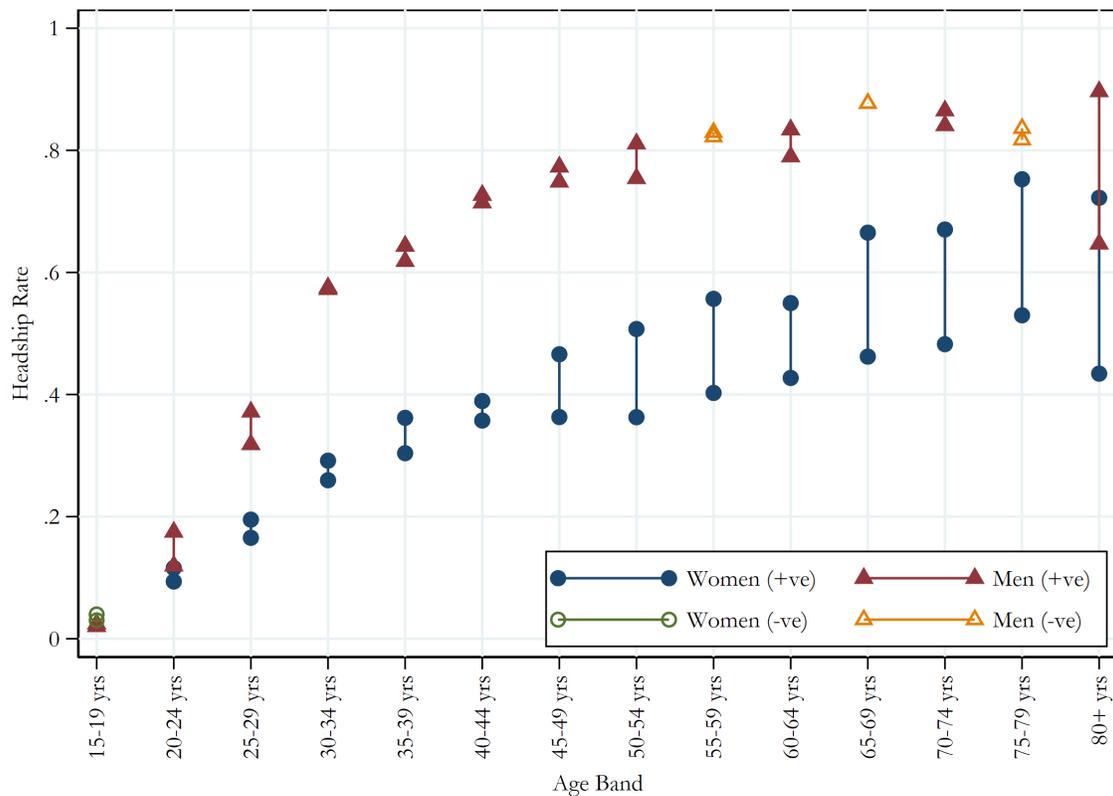


Notes: own calculations using a cross-entropy weighted OHS-GHS series.

number of spouses of the household head. Whereas 55% of households included a spouse in 1996 - with wide discrepancies by gender - only 37% did in 2011. This represents a contraction of over a third. Change in adult household composition and union formation suggests that the social patterns behind declining household size are more complicated than simply declining fertility.

One of the reasons why it is important to study household formation in developing countries is because of the higher prevalence of non-nuclear household compositions. Three-generation households and skip-generation households make up a considerable portion of households at over a fifth in total in 2011 and certain types of skip-generation households even increased over the period. Table 1 shows that all forms of household generational structures declined in their share of overall household composition, with the exception of single generation households and skip two generation households. The expansion in single generation living is reflective of the increase in single person households which about doubled from 10% of households in 1995 to 21.27% in 2011. The largest contraction came from two generational households, likely reflecting the decline in the number of children; however, the share of skip two generation households increased. This could represent a grandparent living with their grandchildren for example. By 2011, 9% of female-headed households were skip two generation households. Such a pattern is further informed by the continued prevalence of extended family members in the household. The number of grandchildren, siblings, other kin, and other household members either marginally increased or remained stable over the period. A pattern seems to be emerging where it is the more nuclear portion of the household that is shrinking (children and spouses), but that the extended portion

**Figure 3:** Change in Male and Female Age-specific Headship Rates, 1996-2011



Notes: own calculations using a cross-entropy weighted OHS-GHS series.

of the household remains important.

Within this pattern, there are gender discrepancies. The household size of male-headed households is declining faster with the number of both children and adults falling at about double the rate compared to female-headed households. A key point to which we will return later is that female heads are much less likely to be married than their male counterparts. This is indeed reflected in Table 1 where the share of households with spouses is much lower for female compared to male heads, although both experienced decline. Mainly, though, female-headed households are more likely to be home to any type of extended kin in the table, with the exception of parents of the head. The share of female-headed households with a grandchild in it increased from 29% to 35% over the period, whilst the share of male-headed households seems to have remained unchanged at between 13-14% over the whole period. This is likely interacting with trends around HIV and care in South Africa. The epidemic is mainly concentrated amongst prime-aged adults: 19 percent of women aged 15-49 were living with HIV in 2011 (Goldberg 2013). One consequence is a higher burden of care for both the ill (Clark et al. 2007) and the children of the ill (Mtshali 2015) on family members, and especially, grandmothers.

**Table 1:** Change in Household Generational Structure and Composition, 1995-2011

| HEAD TYPE:  | 1995                  |                 |          | 2011     |                 |          | Marginal Change 1995-2011 |                 |          | Share Change 1995-2011 |              |       |       |
|---|-----------------------|-----------------|----------|----------|-----------------|----------|---------------------------|-----------------|----------|------------------------|--------------|-------|-------|
|   | ALL                   | FEMALE          | MALE     | ALL      | FEMALE          | MALE     | ALL                       | FEMALE          | MALE     | ALL                    | FEMALE       | MALE  |       |
| <b>GENERATIONAL STRUCTURE PER HOUSEHOLD</b>                         |                       |                 |          |          |                 |          |                           |                 |          |                        |              |       |       |
| Single Gen  | <i>num</i>            | <b>1 962.38</b> | 577.20   | 1 385.18 | <b>5 558.18</b> | 1 526.36 | 4 029.89                  | <b>3 595.81</b> | 949.17   | 2 644.70               | <b>1.83</b>  | 1.64  | 1.91  |
|   | <i>share</i>          | <b>0.22</b>     | 0.18     | 0.25     | <b>0.39</b>     | 0.26     | 0.48                      | <b>0.16</b>     | 0.08     | 0.23                   |              |       |       |
| Two Gen   | <i>num</i>            | <b>5 029.55</b> | 1 755.63 | 3 273.92 | <b>6 266.91</b> | 2 773.27 | 3 493.65                  | <b>1 237.36</b> | 1 017.63 | 219.73                 | <b>0.25</b>  | 0.58  | 0.07  |
|   | <i>share</i>          | <b>0.57</b>     | 0.55     | 0.59     | <b>0.44</b>     | 0.47     | 0.41                      | <b>-0.14</b>    | -0.08    | -0.18                  |              |       |       |
| Skip 2 Gen  | <i>num</i>            | <b>252.68</b>   | 149.25   | 103.43   | <b>724.36</b>   | 511.92   | 212.44                    | <b>471.69</b>   | 362.67   | 109.01                 | <b>1.87</b>  | 2.43  | 1.05  |
|   | <i>share</i>          | <b>0.03</b>     | 0.05     | 0.02     | <b>0.05</b>     | 0.09     | 0.03                      | <b>0.02</b>     | 0.04     | 0.01                   |              |       |       |
| Three Gen   | <i>num</i>            | <b>1 721.38</b> | 871.29   | 850.10   | <b>2 537.41</b> | 1 626.25 | 911.16                    | <b>816.03</b>   | 754.97   | 61.06                  | <b>0.47</b>  | 0.87  | 0.07  |
|   | <i>share</i>          | <b>0.20</b>     | 0.27     | 0.15     | <b>0.18</b>     | 0.27     | 0.11                      | <b>-0.02</b>    | 0.00     | -0.05                  |              |       |       |
| Skip 3 Gen  | <i>num</i>            | <b>86.15</b>    | 38.12    | 48.03    | <b>38.67</b>    | 25.73    | 12.94                     | <b>-47.49</b>   | -12.40   | -35.09                 | <b>-0.55</b> | -0.33 | -0.73 |
|   | <i>share</i>          | <b>0.01</b>     | 0.01     | 0.01     | <b>0.00</b>     | 0.00     | 0.00                      | <b>-0.01</b>    | -0.01    | -0.01                  |              |       |       |
| Children<br>(<15 yrs)   | <i>mean num</i>       | <b>1.63</b>     | 1.83     | 1.51     | <b>1.07</b>     | 1.36     | 0.86                      | <b>-0.56</b>    | -0.47    | -0.65                  | <b>-0.34</b> | -0.26 | -0.43 |
|   | <i>share with any</i> | <b>0.67</b>     | 0.71     | 0.64     | <b>0.51</b>     | 0.61     | 0.43                      | <b>-0.16</b>    | -0.10    | -0.21                  | <b>-0.24</b> | -0.14 | -0.32 |
| Adults<br>(15 yrs +)  | <i>mean num</i>       | <b>2.98</b>     | 2.82     | 3.07     | <b>2.51</b>     | 2.58     | 2.47                      | <b>-0.47</b>    | -0.24    | -0.61                  | <b>-0.16</b> | -0.08 | -0.20 |
|   | <i>share with any</i> | <b>1.00</b>     | 1.00     | 1.00     | <b>1.00</b>     | 1.00     | 1.00                      | <b>0.00</b>     | 0.00     | 0.00                   | <b>0.00</b>  | 0.00  | 0.00  |
| <b>COMPOSITION IN REFERENCE TO THE HOUSEHOLD HEAD PER HOUSEHOLD</b> |                       |                 |          |          |                 |          |                           |                 |          |                        |              |       |       |
| Head  | <i>mean num</i>       | <b>1.00</b>     | 1.00     | 1.00     | <b>1.00</b>     | 1.00     | 1.00                      | <b>0.00</b>     | 0.00     | 0.00                   | <b>0.00</b>  | 0.00  | 0.00  |
|   | <i>share with any</i> | <b>1.00</b>     | 1.00     | 1.00     | <b>1.00</b>     | 1.00     | 1.00                      | <b>0.00</b>     | 0.00     | 0.00                   | <b>0.00</b>  | 0.00  | 0.00  |
| Spouse  | <i>mean num</i>       | <b>0.55</b>     | 0.11     | 0.81     | <b>0.38</b>     | 0.07     | 0.59                      | <b>-0.18</b>    | -0.04    | -0.22                  | <b>-0.32</b> | -0.37 | -0.27 |
|   | <i>share with any</i> | <b>0.55</b>     | 0.11     | 0.80     | <b>0.37</b>     | 0.07     | 0.59                      | <b>-0.17</b>    | -0.04    | -0.21                  | <b>-0.32</b> | -0.36 | -0.27 |
| Child   | <i>mean num</i>       | <b>2.08</b>     | 2.14     | 2.04     | <b>1.21</b>     | 1.39     | 1.08                      | <b>-0.87</b>    | -0.75    | -0.96                  | <b>-0.42</b> | -0.35 | -0.47 |
|   | <i>share with any</i> | <b>0.73</b>     | 0.76     | 0.71     | <b>0.56</b>     | 0.65     | 0.49                      | <b>-0.17</b>    | -0.11    | -0.22                  | <b>-0.23</b> | -0.14 | -0.31 |
| Parent  | <i>mean num</i>       | <b>0.05</b>     | 0.04     | 0.06     | <b>0.01</b>     | 0.01     | 0.01                      | <b>-0.04</b>    | -0.03    | -0.04                  | <b>-0.73</b> | -0.66 | -0.77 |
|   | <i>share with any</i> | <b>0.04</b>     | 0.04     | 0.05     | <b>0.01</b>     | 0.01     | 0.01                      | <b>-0.03</b>    | -0.02    | -0.04                  | <b>-0.72</b> | -0.63 | -0.77 |
| Grandparent   | <i>mean num</i>       | <b>0.01</b>     | 0.02     | 0.01     | <b>0.01</b>     | 0.01     | 0.00                      | <b>-0.01</b>    | -0.01    | -0.01                  | <b>-0.54</b> | -0.39 | -0.71 |
|   | <i>share with any</i> | <b>0.01</b>     | 0.01     | 0.01     | <b>0.00</b>     | 0.01     | 0.00                      | <b>-0.01</b>    | -0.01    | -0.01                  | <b>-0.73</b> | -0.63 | -0.85 |
| Grandchild  | <i>mean num</i>       | <b>0.53</b>     | 0.84     | 0.34     | <b>0.55</b>     | 0.92     | 0.30                      | <b>0.03</b>     | 0.07     | -0.05                  | <b>0.05</b>  | 0.09  | -0.13 |
|   | <i>share with any</i> | <b>0.20</b>     | 0.29     | 0.14     | <b>0.22</b>     | 0.35     | 0.13                      | <b>0.02</b>     | 0.06     | -0.01                  | <b>0.12</b>  | 0.21  | -0.10 |
| Sibling   | <i>mean num</i>       | <b>0.15</b>     | 0.21     | 0.12     | <b>0.13</b>     | 0.16     | 0.11                      | <b>-0.02</b>    | -0.04    | 0.00                   | <b>-0.11</b> | -0.21 | -0.03 |
|   | <i>share with any</i> | <b>0.09</b>     | 0.11     | 0.07     | <b>0.09</b>     | 0.11     | 0.08                      | <b>0.01</b>     | 0.00     | 0.01                   | <b>0.08</b>  | -0.04 | 0.16  |
| Other Kin   | <i>mean num</i>       | <b>0.18</b>     | 0.25     | 0.15     | <b>0.25</b>     | 0.33     | 0.20                      | <b>0.07</b>     | 0.08     | 0.05                   | <b>0.38</b>  | 0.34  | 0.35  |
|   | <i>share with any</i> | <b>0.10</b>     | 0.14     | 0.08     | <b>0.15</b>     | 0.19     | 0.12                      | <b>0.05</b>     | 0.06     | 0.04                   | <b>0.48</b>  | 0.42  | 0.47  |
| Other   | <i>mean num</i>       | <b>0.05</b>     | 0.03     | 0.07     | <b>0.04</b>     | 0.04     | 0.03                      | <b>-0.02</b>    | 0.01     | -0.03                  | <b>-0.35</b> | 0.20  | -0.50 |
|   | <i>share with any</i> | <b>0.03</b>     | 0.02     | 0.03     | <b>0.02</b>     | 0.03     | 0.02                      | <b>0.00</b>     | 0.00     | -0.01                  | <b>-0.15</b> | 0.22  | -0.31 |

Notes: own calculations using the OHS 1995 and the GHS 2011, weighted using a cross-entropy weight. The generational variables do not account for other relatives or other household members. ‘Skip Gen’ means that generations are not successive, so a skip two generational household will include a head and their grandchildren, for example. Each generation type is reported inclusive of skip; i.e. 252 thousand of the 5 029 thousand two generation households in 1996 were skip generational. Shares of single, two, and three generation households will then sum to one within a year. All shares, including skip generation, are reported as out of all households. The numbers of four and five generational households were too negligible to be worth reporting, together representing less than a percentage point of the sample.

## 5 Institutional context and trends for household change in South Africa

In this section we discuss in detail the three institutional factors this paper is concerned with, as well as, how they each interact with poverty and inequality.

### 5.1 Apartheid

The historic first democratic election in 1994 marked the end of apartheid and was of foremost importance in the lives of all South Africans. Prior to this election, South Africa was subject to racial segregation and the exploitation of cheap Black labour by a White minority government. Grand apartheid - the 56 years of rule by the National Party, beginning in 1948 - was the formalisation of what had been more than 300 years of racial oppression and exploitation (Smith 2003). After 1994, the African National Congress was voted in as the ruling party and political freedom was extended to all. The South African constitution became one of the most liberal and progressive in the world by not only enshrining human rights and upholding tolerance, but also by entitling its citizens to services to meet basic needs (Comaroff & Comaroff 2003). This landmark institutional change had important implications for household change. As Lemon (1991, p 1) says of the apartheid era “No other country, certainly, has embarked on so thorough a reorganisation of its urban space for the purposes of segregation”.

Apartheid Acts, such as the Group Areas Act and the Bantu Authorities Act, imposed restrictions on where certain population groups were allowed to live. There are four population groupings on which apartheid was based and on which South Africa still collects population data today: Black African, Coloured, Indian or Asian, and White.<sup>10</sup> The term ‘Black’ alone usually refers to Black African, Coloured, Indians and Asians. Smith (2003) quotes 1989 census data with caution to sketch the demographics of the country: there were about 21.1 million Black Africans and an additional 6.5 million in the four independent homelands (described shortly); about 5 million Whites; 3.2 million Coloureds; and 940 000 Indians or Asians. The large majority of the Coloured, Indian or Asian, and White population was urban.

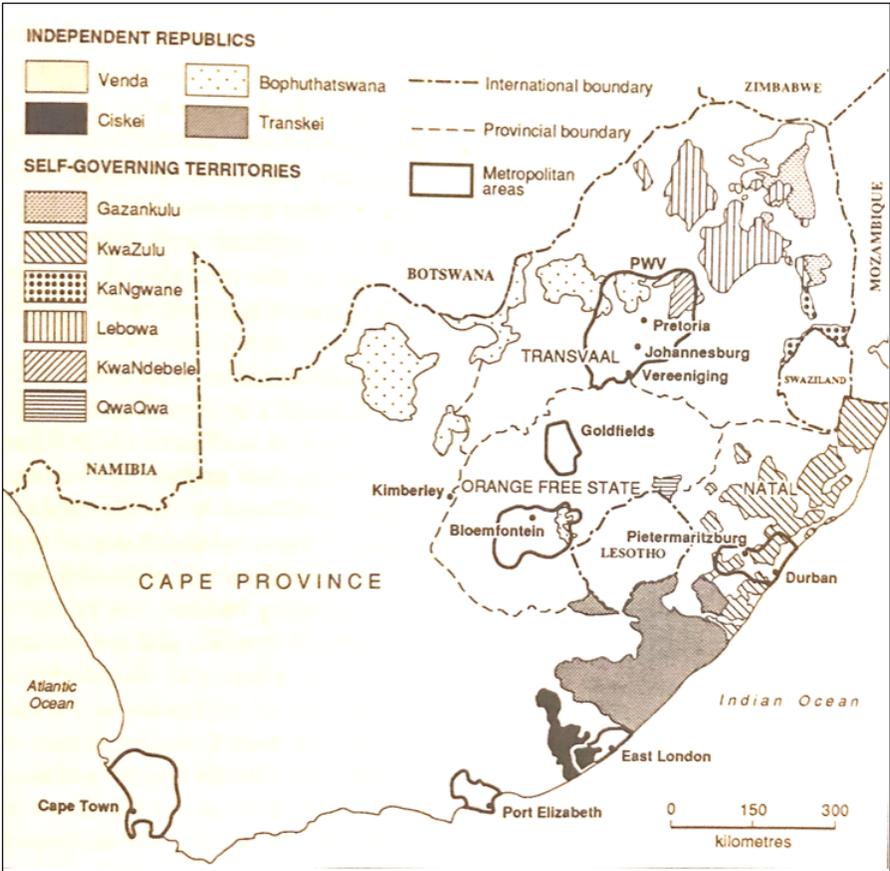
The apartheid economy was based on the concept of a rural cheap Black African work force supplying labour to the white economic centres in the cities and the mines in proportion to their needs (Lemon 1991). As part of this scheme, the apartheid government set up ten homelands - four of which were actually considered fully ‘independent’ and excluded from censuses during the time - in which Black African South Africans were to live. Figure 4 maps the distribution of the homelands, as well as, the self-governing ones. African people who made up 70 percent of the population were meant to be hemmed in to areas that made up less than 13 percent of the area of South Africa (Butler et al. 1978). By 1989, 16 million Black Africans were living in the ten homelands with the remaining 11.5 million living in “white South Africa” Smith (2003). The homeland system structured the flow of circular labour migrants between the gold mines and the rest of their family in the rural homeland that would come to define the lives of many Black African men, and which still continues in some form today. Large desolate hostels were erected to house Black African miners while they worked on the mines and were away from their rural homes. Black men and later also women had to carry Pass books permitting their movement in white urban areas.

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<sup>10</sup>We term these ‘population groups’ because the extent to which these groupings reflect actual racial differences is contested. In this paper, we employ these groups to capture the institutional legacy effects of apartheid social engineering which is still in living memory for most of the sample used in this research; but this should not be interpreted as an endorsement of these categories. A study of the Cape metro area asked respondents why they had self-classified into different population groups and noted that White people mainly cited physical appearance; Black African people emphasised culture; and, Coloured people pointed to apartheid or heritage (Seekings et al. 2005). When identifying cultural grouping, Black Africans were overwhelmingly likely to use language group, but Coloured people identified as culturally ‘Coloured’, South African, or Christian. Whites identified as South African, Christian, or English-speaking. This suggests that these groups do capture some important institutional differences.

The Group Areas Act segregated the cities and was behind the forced removals of the largely urban Coloured and Indian communities. This usually meant evicting communities located in the center of cities, such as in District 6 in Cape Town and Sophiatown in Johannesburg, and forcibly relocating them to the periphery. By the end of 1987, more than 1 300 Group Areas had been proclaimed with Cape Town the most affected and ultimately the the most segregated city. The segregation was highly successful and comprehensive; by 1985, only about 10 percent of the urban population lived outside of its designated group area (Lemon 1991). The vast majority of the 125 000 families forcibly removed were Coloured or Indian. It is estimated, though, that about 730 000 Africans were resettled in urban areas between 1960 and 1983 as an indirect result of the Group Areas Act. There was an untold human cost to the removals Lemon (1991, p 10) writes that “many communities were emotionally impoverished by the destruction of their community and their remoteness from the area in which they had grown up”. No less than 99.7 percent of whites already lived in what became White group areas. As a result, the apartheid state heavily intervened in the living arrangements of all Black South Africans, whilst leaving the living conditions of White South Africans intact and undisturbed.

**Figure 4:** Map of South African metro areas and the apartheid homelands



Notes: Figure 1 reproduced from Smith (2003)

The clear rural-urban divide envisioned by the planners of the apartheid economy was unsustainable both because the economy needed a settled urban labour supply and because Black Africans themselves wanted to be closer to cities where most economic opportunities were (Smith 2003). The latter was the case because of the close to zero employment opportunities in many of the homelands combined with the increased land dispossession of African farmers outside of the homelands (Lemon 1991). Mabin

(2003, p 21) describes this urbanisation as driven by “the need to find a place to live under severely strained circumstances”. As such, Black urbanisation was a feature of South African in the 1960s and especially the 1970s. Urbanisation happened in a way that was largely unregulated by the state, both in terms of where settlements sprang up, as well as, physical infrastructure (Smith 2003). By the 1980s, there were permanent Black settlements around most cities, some of which were bulldozed by the State, like Unibel, and others which survived, such as Crossroads. About 7 million informal settlers were in and around urban areas by the late 1980s (Lemon 1991). Consequently, influx controls (the pass book system) were finally lifted in 1986 when the State confronted the reality that, even in the absence of its own urban planning policy, Black urban populations existed and were there to stay (Smith 2003).

Since urban Black settlements developed in an unregulated and ad hoc way, conditions in these urban townships were usually appalling with severe overcrowding and health concerns (Smith 2003, Lemon 1991). Household size in these townships is estimated to be very high, with Lemon (1991) describing widespread reports of 15 people or more living in a four room house. Urbanisation likely caused the opposite trend in the homelands. De Wet (2009) charts the decline in household size in the Kiskammahoek village in the Ciskei homeland between 1948 until 2006. The share of labour migrants who were away increased steeply from about one on average per household in 1948 to 1.63 on average per household in 2006. Average household size (at home) then effectively shrunk from 6.14 persons to 3.54 for the same period.

Overall, options available to Black African South Africans towards the end of apartheid were to either form households in homelands that were often remote and rural with dismal economic prospects and send a labour migrant to generate income, or to set up a household in an overcrowded township. Some of the townships became increasingly unstable and violent towards the end of the 80s in particular, as the fight to end apartheid ramped up. The country was in a State of Emergency throughout most of this decade. Whilst the State maintained strong evictions laws to remove settlements, many of them became essentially battlegrounds over which police had little control and only entered in armoured vehicles to clash on a sometimes nightly basis with freedom fighters. Altogether, the apartheid system systematically impoverished and undereducated Black South Africans and interfered in family set-up through the “long dislocation between residence and workplace” (Smith 2003, p 8). The result was that in 1994, at the end of apartheid, unemployment was incredibly high and marriage rates were low amongst Black African South Africans in particular. Further, income was highly concentrated in the hands of Whites making South Africa one of the most unequal countries in the world with a Gini coefficient of almost 60 in 1993 (The World Bank 2019b).

The major change after 1994 for household formation was that freedom of movement was extended to all, the homelands were dissolved, and there were no longer restrictions on where people could live in a legal sense. This can be conceptualised as a supply shock of living locations with attendant price effects. In addition to this effect, the new government was committed to a generous social protection bill. From the late 1990s, eligible households began receiving social transfers for child support, old-age, foster care, and disability, amongst others. This social protection bill can be credited for a large portion of the reduction of income poverty over the period (Leibbrandt et al. 2010). However, there were also in-kind contributions from the State. About 1.4 million households in 2011 included a member receiving a housing subsidy of some kind (which could be a free state-built house; see Table 2), although in a speech to parliament in 2009, the president at the time claimed 2.6 million free state houses had been built (President Motlanthe 2009). The State also provides free access to a base level of electricity and water, as well as, refuse removal. Table 2 shows that access to these services expanded substantially over the period.

As a consequence of apartheid-era social engineering, South Africa in the mid-1990s inherited already astonishingly high levels of income inequality and poverty. Finn et al. (2013) records the difference between the drop in income and multi-dimensional poverty over the period. He measures multi-dimensional poverty by including access to piped water, electricity, and a toilet, amongst other aspects and finds that multi-dimensional poverty reduced dramatically from a poverty headcount of 0.37 in 1993 to 0.08 in 2008. By contrast, the equivalent money-metric poverty change for a 0.37

poverty headcount in 1993, only dropped to 0.28 over the same period. In other words, income poverty reductions have been modest whilst South Africans have become much better off in a multi-dimensional sense and in ways that materially affect the costs of household formation: household services and housing itself. This must be accounted for when considering how the institutional change of the end of apartheid interacts with the economic aspects of household formation. Knowing you are entitled to free utilities and possibly even free shelter goes a long way to making the cost to move out of your current home cheaper. Whether this shift was enough to spur new household formation is an empirical question. Looking across time, Wittenberg & Collinson (2017) show that free housing was partly behind rapid household formation in a local rural area.

In general, population group remains salient in post-apartheid South Africa both because these groups structure conversations about and opportunities for redress, as well as, hold cultural meaning (Seekings et al. 2005). There has been little residential racial integration since the end of apartheid (Christopher 2005) and discrimination continues, especially very markedly in the labour market (Burger & Jafta 2010). The sustained exclusivity of the labour market is a critical reason why the South African government's large investment in basic services has not translated into higher real incomes. Unemployment remains at globally high levels at a narrow rate of 23.3 percent in 2011 in Table 2. There are high levels of discouraged work seekers; the broad unemployment rate was 32.1 percent in 2011. There is general consensus that income inequality has increased over the post-apartheid period, driven mainly by increasingly within-group inequality amongst Black African South Africans. Table 2 shows that in 2011, the Gini was 63.4. At the outset, we have a strong trend in household formation, but other post-apartheid trends moving in more ambiguous directions. An increase in the the supply of living locations combined with reductions in in-kind and multi-dimensional poverty would lead us to expect boosts in household formation. This boost will be constrained by a still highly exclusive labour market perpetuating income inequality.

## 5.2 Marriage Markets

The key features of the First Demographic Transition (FDT) are declining fertility, declining mortality, and a society still mainly concerned with what Lesthaeghe (2010) called “basic material needs” (e.g. income, work conditions, housing, health, schooling). In this sense, South Africa is firmly within the ambit of the FDT: Table 2 shows that fertility rates are falling, 60 percent of the population is under the age of 30, and material well-being is still very much a developmental priority for the State. And yet, South Africa bucks the profile of a typical FDT country in an important way when it comes to marriage. Marriage is predominant in FDT countries, and divorce and cohabitation are low. But, Table 2 shows that whilst divorce may be rare in South Africa, the prevalence of marriage is also diminishing. Instead, the never married category expanded from 37.25 percent in 1996 to 44.99 percent in 2010 and cohabitation roughly doubled from 4.69 percent to 11.93 percent over the same period. Note these are not insignificant rates of cohabitation by industrialised country standards: about 7 percent of Americans were cohabiting in 2016 (Stepler 2017).

Trends in marital status are salient for household formation, since marriage is one of the main reasons people form or dissolve households. Table 3 reports the marital status of male and female heads in three years. Between 1996 and 2011, the share of never married female heads increased from 24.34 percent to 42.05 percent to become the most prevalent marital status of female heads, whilst the shares of widowed and divorced heads changed only slightly. Men similarly dropped their share of married versus never married heads, but married male heads remained most common. Widowhood accounts for a much larger share of female (31 percent) compared to male (4.64 percent) heads in 2011. To put this in perspective, in the US in 1991, 19.4 percent of White female heads had never married and 54.2 percent of African American female heads had never married (Kimenyi & Mbaku 1995).<sup>11</sup> Whereas marriage is much more pervasive amongst female heads in Latin America, ranging from the about 35-65 percent between 2000 and 2004 (Gandelman 2009), and the likelihood that a female head

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<sup>11</sup>By race, South Africa's statistics for 2011 were 45.49 percent of African female heads had never been married and 19.28 percent of White female heads had never been married.

**Table 2:** Descriptive Demographic, Economic, and Institutional Statistics for South Africa from Various Sources

|  | Statistic<br>Year | <b>Statistic<br/>Year</b> | Source                         |
|--|-------------------|---------------------------|--------------------------------|
| <b>Demography</b>                                |                   |                           |                                |
| Population (millions)                            | 41.3<br>1996      | <b>51.6<br/>2011</b>      | Census 1996 and 2011 data      |
| Households (millions)                            | 9.06<br>1996      | <b>14.5<br/>2011</b>      | Census 1996 and 2011 data      |
| Fertility (Recorded Live Births in Millions)     | 1.00<br>1996      | <b>1.20<br/>2011</b>      | Statistics South Africa (2015) |
| Total Fertility Rate                             | 3.5<br>1996       | <b>2.67<br/>2011</b>      | Statistics South Africa (2015) |
| Percentage of Population under 30                | 63.3<br>1996      | <b>59.8<br/>2011</b>      | OHS-GHS data                   |
| <b>Economic Factors</b>                          |                   |                           |                                |
| GNI per capita per month (constant 2010 US\$)    | 5435.29<br>1995   | <b>7225.13<br/>2011</b>   | The World Bank (2019c)         |
| Gini Coefficient                                 | 60.7<br>1996      | <b>63.4<br/>2011</b>      | The World Bank (2019b)         |
| Poverty Headcount at \$1.90 a day (2011 PPP) (%) | 71.2<br>1996      | <b>56.2<br/>2010</b>      | The World Bank (2019d)         |
| Poverty Headcount at \$5.50 a day (2011 PPP) (%) | 43.2<br>1996      | <b>27.7<br/>2010</b>      | The World Bank (2019e)         |
| Unemployment Rate (Narrow)                       | 19.2<br>1996      | <b>23.3<br/>2011</b>      | PALMS data                     |
| Unemployment Rate (Broad)                        | 34.6<br>1996      | <b>32.1<br/>2011</b>      | PALMS data                     |
| Circular Labour Migrants                         | 18.8<br>1993      | <b>10.9<br/>2008</b>      | Posel (2009)                   |
| <b>Institutional Factors</b>                     |                   |                           |                                |
| Government-built Housing (millions)              | 0.50<br>1999      | <b>1.40<br/>2011</b>      | GHS data                       |
| Government-built Housing (% of HH)               | 5.00<br>1999      | <b>9.75<br/>2011</b>      | GHS data                       |
| Households with Access to Electricity (%)        | 69.7<br>2001      | <b>84.7<br/>2011</b>      | Statistics South Africa (2017) |
| Households with Access to Piped Water (%)        | 62.3<br>2001      | <b>73.4<br/>2011</b>      | Statistics South Africa (2017) |
| Married (20 years and older) (%)                 | 48.08<br>1996     | <b>31.86<br/>2010</b>     | GHS data                       |
| Cohabiting (20 years and older) (%)              | 4.69<br>1996      | <b>11.93<br/>2010</b>     | GHS data                       |
| Divorced/Separated (20 years and older) (%)      | 3.1<br>1996       | <b>3.16<br/>2010</b>      | GHS data                       |
| Never Married (20 years and older) (%)           | 37.25<br>1996     | <b>44.99<br/>2010</b>     | GHS data                       |

Notes: All statistics are recovered from the referenced source, unless 'data' is referenced which refers to own calculations using the respective data. All calculations are adjusted using the cross-entropy survey weights in the series, with the exception of the census data for which the household weight was used to count households and the person weight was used to count people. Data sources are in the Reference list. GNI = Gross National Income.

has never been married in Iran is minuscule at 3.2 percent (Aghajanian & Thompson 2013). The share of never married household heads in South Africa is more comparable to a developed country than developing counterparts.

**Table 3:** Marital Status (%) of Household Heads in South Africa: 1996, 2006 and 2011

|                               | 1996  |              | 2006  |              | 2011  |              |
|-------------------------------|-------|--------------|-------|--------------|-------|--------------|
|                               | Men   | Women        | Men   | Women        | Men   | Women        |
| <b>Ever Married</b>           | 78.94 | <b>71.12</b> | 64.99 | <b>59.42</b> | 57.04 | <b>52.82</b> |
| - Married                     | 74.09 | <b>34.07</b> | 58.95 | <b>17.56</b> | 50.07 | <b>13.37</b> |
| - Widowed                     | 2.66  | <b>28.38</b> | 3.67  | <b>32.91</b> | 4.64  | <b>31.01</b> |
| - Divorced/Separated          | 2.28  | <b>8.95</b>  | 2.36  | <b>8.95</b>  | 2.32  | <b>8.44</b>  |
| <b>Never Married Combined</b> | 20.94 | <b>28.43</b> | 35.01 | <b>40.58</b> | 42.95 | <b>47.18</b> |
| - Cohabiting with Partner     | 6.23  | <b>4.11</b>  | 15.49 | <b>4.70</b>  | 15.37 | <b>5.13</b>  |
| - Never Married               | 14.72 | <b>24.34</b> | 19.52 | <b>35.88</b> | 27.59 | <b>42.05</b> |

Notes: own calculations using the OHS-GHS series adjusted using cross-entropy weights. Sample limited to those aged 20 years and older.

Figure 5 presents marital status for women of different population groups.<sup>12</sup> The racial distinction is pertinent in South Africa: about 98 percent of spouses are married to heads of the same population group in our data meaning that marriage in South Africa is still highly race-assortative. White women are much more likely to be married than African women. In 2010, 24 percent of African women were married compared to 58 percent of White women. In the same year, 46 percent of African women over 20 years had never been married compared to 16 percent of White women. According to Posel & Rudwick (2013), this represents a 40 percentage point difference between the shares of African and White women who had ever been married in 2010.<sup>13</sup> African and White women are equally likely to be mothers, though, meaning the marital status of mothers varies sharply by race. In 2008, Posel & Rudwick (2013) finds that White mothers were more likely to ever have been married at twice the chance of African mothers: 92 percent versus 39 percent, respectively. More African mothers (14 percent) were cohabiting than White mothers (5 percent); but among mothers who had never been married, White mothers were much more likely to be living with a partner (59 percent) compared to African mothers (23 percent). Partly as a consequence of differential marriage profiles, African children are also much less likely to be living in households with their father. In 2008, only 30 percent of African children compared to 71 percent of White children 14 years and younger lived in a household with a resident father.<sup>14</sup>

Posel & Rudwick (2013) draw links between South Africa's apartheid history and current economic conditions to explain the steep marriage differentials between population groups. Hunter (2010) notes that marriage rates have been declining since the 1960s and other anthropologists link the extended periods of separation enforced by the dislocation of residence in homelands and work in urban areas or mines to both threatening gender relations and undermining marriage prospects. As a result, African women entered the post-apartheid period with already much lower rates of marriage in 1995 compared to White women (See Figure 5). Even if labour migrancy is declining in the post-apartheid period,

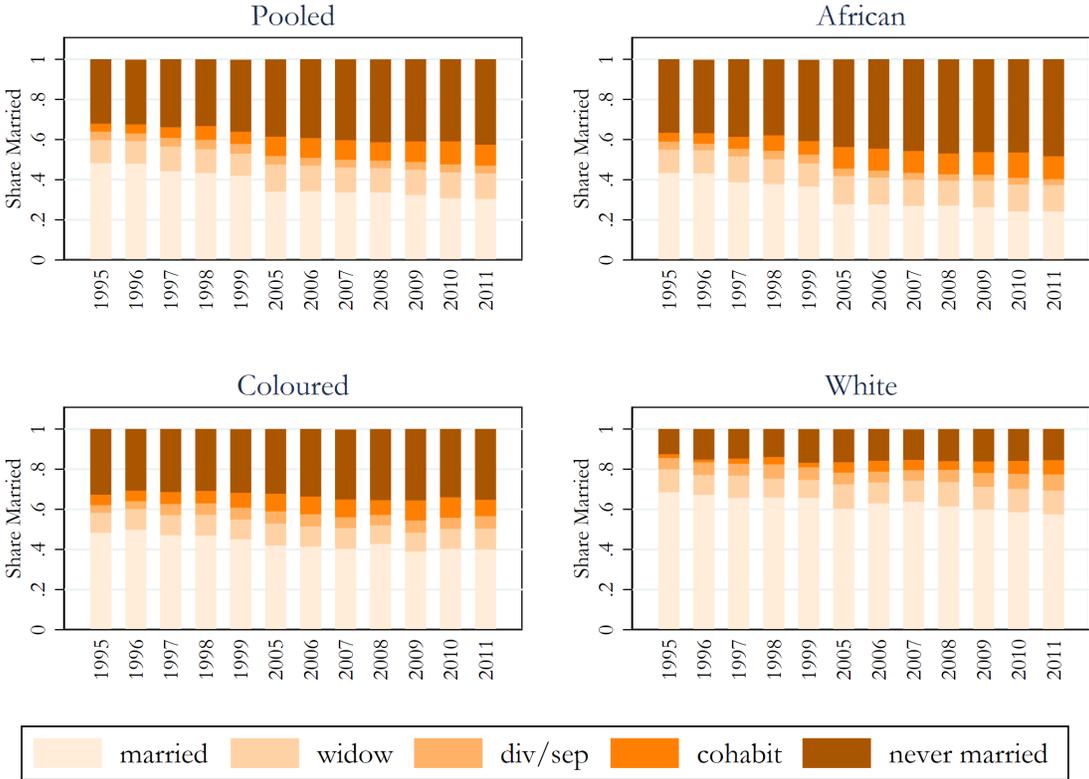
<sup>12</sup>Note the gap in the series between 1999 and 2005. The first few rounds of the GHS 2002-2004 did not differentiate between being married and living together with a partner.

<sup>13</sup>Figure 5 is also designed to show the difference between ever married (married, divorced or separated, or widowed) and never married (never married or cohabiting). It is not a perfect categorisation, though, because separated women may previously have been cohabiting, and, cohabiting women may previously have been married and divorced, for example. We use the same data as Posel & Rudwick (2013) but with different weights.

<sup>14</sup>Low proportions of African children with co-resident fathers can also partly be explained by labour migrancy: 50 percent of African children had living fathers who were not resident compared to 20 percent of White children. Higher HIV/AIDS mortality rates also explain some of the difference: 14 percent of African children had deceased fathers compared to only 1 percent of White children (Posel & Rudwick 2013).

marriage rates amongst Africans has continued to fall. This is likely related to the differential economic prospects of African and White men interacting with cultural marriage practises (Posel & Rudwick 2013, Madhavan et al. 2013). Unemployment rates are much higher amongst African compared to White men. Black African male narrow unemployment reached over 20 percent in the late 90s and has remained above this mark since then with an increasing trend. By contrast, narrow unemployment for White men has never exceeded 7 percent in the period under study and has usually been less than 5 percent.<sup>15</sup> Posel & Casale (2013) show that economic-based sex ratios are better predictors of the probability of marriage of young African women, but no such economic relationship exists for White women. In addition, bridewealth practise is common amongst many African couples, especially Zulu people who are the most common cultural and language grouping in South Africa. Bridewealth is extremely expensive. Posel & Rudwick (2013) calculated it to be about 13 times the average monthly earnings of African men between 1985 and 1998. It thus adds a further financial impediment to marriage, which Black African men are increasingly unable to afford as unemployment rates stabilise at very high levels. Posel & Rudwick (2013) emphasise that cohabitation has not compensated for the drop in marriage by as much as may be expected because, even in the context of non-marital child birth, cohabitation is widely considered culturally unacceptable unless bridewealth negotiations are underway. In this sense then, South Africa represents the consequences of high inequality and unemployment interacting with cultural and marital institutions with serious consequences for union and household formation.

**Figure 5:** Marital status for South African women aged 20 and older



Notes: own calculations using the OHS-GHS series adjusted with cross-entropy weights. “div/sep” means divorced or separated.

<sup>15</sup>Own calculations using the Post-Apartheid Labour Market Series (Kerr et al. 2017)

### 5.3 Gender

Now we turn to the last framework, which is gender. In much of the sociological literature, gender is keenly understood as interrelated with the demographic transition literature (Goldscheider et al. 2015, Esping-Andersen & Billari 2015). Goldscheider et al. (2015) describe the two halves of the gender revolution. In the first half, women enter the public sphere - schools and the workplace. The consequence is a disruption of family as women start delaying marriage, forging careers and having babies later and at a reduced rate. The second half of the gender revolution is when men enter the private sphere by doing their share of housework and childcare. The beginnings of this are being seen in Europe and the very first cohort of developed countries to undergo the First and then the Second Demographic Transition. In some countries this has been linked to a bounce-back of fertility and union formation (Esping-Andersen & Billari 2015). The intuition here is that gender is an institution that affects household formation in structural ways through its effects on access to income and the set up of marriage and childcare.

Using this division, what is the gender landscape in South Africa? Quantitative and qualitative evidence agrees that there is a double burden on South African women who are expected to both bring in income and do the vast majority of childcare and housework. Questions from the South African Social Attitude Survey (SASAS) are graphed in Figure 6 to gauge gender attitudes for the years they are available (Human Sciences Research Council 2013-2016). On the one hand, it is strongly expected that both men and women contribute to household income. Yet, it is also relatively strongly held that childcare and housework is a women's domain. The prevalence of a double burden on South African women is backed up by qualitative work by Parry & Segalo (2017). Using overall scores gender norms actually seemed to become less egalitarian between 2003 and 2012. We cannot think of a good reason why this would be the case besides speculating about a backlash from continued high male unemployment. Parry & Segalo (2017) suggest that some female breadwinners experience backlash from their male partners who feel emasculated by their breadwinner status, which in some cases even triggered intimate partner violence. In her study of perpetrators of physical violence against women, Boonzaier (2005) found the tension between the traditional male breadwinner trope and female breadwinners was challenging for perpetrators and led to feelings of emasculation. Boonzaier (2005) writes that "Men attempted to maintain these [traditional] forms of identity through the exertion of power in the relationship, through violence as well as sexual coercion and marital infidelity". Gender based violence is very high in South Africa (Boonzaier 2005) and sexual assault was one of the few crime categories to increase in the past five years (South African Police Service 2018).

However, on closer inspection of Figure 6 there may be a mild increase in normative confusion as evidenced by the increasing shares of neutral responses. Different institutions advocate varying levels of gender equality, although, overall, Parry & Segalo (2017) are correct to consider the changes to inherent patriarchy in modern South African society as only 'superficial'. The State espouses gender equality as protected in the constitution and various examples of labour market legislation, but other important institutions such as the Church, do not to the same degree. South Africa is a deeply religious country with 89 percent of respondents in the National Income Dynamics Study wave in 2014/5 citing religious activities as important or very important in their lives. A qualitative thesis by Maisiri et al. (2016) explored the intersection of patriarchal African values with Christian religion describing how a sample of the Shona in Zimbabwe used a patriarchal interpretation of the Bible to enforce submissive female roles and male household headship, leading to tension within marriages. These traditional values translate into almost all childcare being carried out by women. van den Berg & Makusha (2018) reports that only 11-12 percent of children received primary care from their fathers using the National Income Dynamics Study. Findings from the 2010 Time Use Survey were that for every eight hours of unpaid care work performed by a woman, only one is done by a man. The reasons why women perform almost all childcare are also related to the low marriage rates discussed in the previous section. Posel & Rudwick (2013) reported that only 30 percent of African children aged 14 and younger were co-resident with their fathers but 50 of African children had a father who was alive but not resident. Gender attitudes are very traditional, but it is also the case that many fathers physically are not

present because of the tensions between culture and the economic prospects of marriage, as well as, because some portion of fathers may be labour migrants. The reasons why fathers are absent may be complicated, but the outcome is the same, leaving women with the overwhelming bulk of childcare in South Africa.

In the public sphere, the position of women in society has changed with mixed results. There is a body of literature documenting the feminisation of the labour force (Casale & Posel 2002, Ntuli 2007). Casale & Posel (2002) report that the female labour force participation rate increased from 38.3 percent in 1995 to 46.7 percent in 1999 in strict terms, but also that this was met with an increase in female unemployment. Female narrow unemployment increased from 22.1 percent to 31.5 percent over the same period. Whilst we think it is likely that there was an increase in female labour force participation, we think there is reason to be tentative about the strength of this trend. We graph female labour force participation and unemployment in Figure 7 using data from the Post-apartheid Labour Market Series (Kerr et al. 2017). The vertical lines indicate the beginning of a new survey questionnaire. The series are clearly highly influenced by breaks in the instrument. Patterns in each statistic can be categorised by survey instrument more so than by time which may lead to the concerning conclusion that the shifts have more to do with survey design than real changes. What remains consistent though is that female labour force participation and unemployment is below and above that of men, respectively, meaning we can conclude with certainty that women have weaker ties to the labour market in South Africa. This is partly because they are doing so much work in the household (van den Berg & Makusha 2018). This in combination with recent evidence of a continued gender pay gap (Jacqueline et al. 2019) suggests that women are not necessarily advancing as much as would be hoped in the labour market. In essence, increased female access to labour market income may have been a pull factor for women forming their own households, but we are cautious about the magnitude of this effect. Advances have been better in the education sector. Male and female enrolment has increased roughly in tandem as the post-apartheid government broadly expanded access to fee-free education (The World Bank 2019a, Goldberg 2013). By 2011, a similar proportion of men and women (about 12.5 percent) had some form of post-secondary education.<sup>16</sup>

In summary of this whole section, then, we can draw some stylized facts about South Africa. Apartheid economic policies exploited the Black population to the benefit of the White minority resulting in extreme income inequality even today where Whites remain the most economically prosperous group. Socio-economic disadvantage continues to correlated along the lines of population group and gender. The country is in the FDT and fertility is declining but marriage is also declining, contrary to the typical profile. This is related to high levels of unemployment and poverty which come into conflict with the prohibitive cost of bridewealth and getting married, in general. Rates of never married female household heads are more comparable to developed country levels than developing. South Africa is also characterised by traditional gender relations leading to women carrying almost all of the load of childcare and housework. Working women therefore face a double burden of economic responsibility and household work. Women participate less in the labour market than men, and when they do, they face higher rates of unemployment. Women's ties to income both through marriage to men and through the labour market are weakening or weak. With this context in mind, we turn to the empirical work of this paper.

## 6 Methodology

We have two main analytic strategies: decomposition and regression. The aim of the decomposition is to characterise the nature of the change as mainly demographic or behavioural. That is, what portion of new households in South Africa are due mainly to the demographic structure (population growth, age structure) and what can be attributed to real change in how people are forming households? The first purpose of the regression strategy is to more carefully try to ascertain the key demographic, economic and institutional features associated with those who form households and interpret these

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<sup>16</sup>Own calculations from the 2011 GHS

results in the context of Section 5. The regressions are grounded in the micro theory of household formation discussed in Section 2. The second purpose of the regressions is to evaluate generational patterns in household formation and assess whether there is an alignment with change in political regime.

## 6.1 Decomposition

This method decomposes the change in the total number of households between two time periods into three sources, following McCue et al. (2015): population growth, changing age structure, and changing headship rates. Essentially, the decomposition works by holding headship rates from the beginning of the period constant and then projecting forward how many households we would expect in the second period based on how much the population grew and how the age structure changed. Some new households are owed simply to a growing population, and some to how the population is distributed over age, since older age groups usually have higher headship rates. The change in headship rates itself is the remainder of the change, interpreted as a ‘behavioural change’, after these two other purely demographic sources have been accounted for. This behavioural change is calculated as the difference between what the change in households would have been if people had continued to form households at the same rate they were doing at the beginning of the period, and what it actually was. The equations below describe how each source is calculated:

$$\Delta_{PG} = \frac{H_{t_0}}{N_{t_0}} * (N_{t_1} - N_{t_0}) \quad (1)$$

$$\Delta_{AS} = \Delta_{PG} - \sum_a \frac{H_{t_0,a}}{N_{t_0,a}} * (N_{t_1,a} - N_{t_0,a}) \quad (2)$$

$$\Delta_{HR} = (H_{t_1} - H_{t_0}) - \Delta_{PG} - \Delta_{AS} \quad (3)$$

where  $\Delta_{PG}$ ,  $\Delta_{AS}$ , and  $\Delta_{HR}$  stand for the number of households we would expect based on population growth, age structure change, and headship rate change, respectively, between the two periods,  $t_0$  and  $t_1$ .  $H$  is the total number of households which corresponds to the total number of heads.  $N$  is the total adult population, aged 15 years or older. There are thirteen five-year age categories,  $a$ , beginning with those aged 15-19 years and ending with an open category of those aged 80 and older.

$\Delta_{PG}$  is calculated by multiplying the headship rate at the beginning period,  $\frac{H_{t_0}}{N_{t_0}}$ , by the change in the total adult population,  $(N_{t_1} - N_{t_0})$ . This is the number of new households we would expect in  $t_1$  given population growth since  $t_0$ , if people continued to form households at the same rate they did in  $t_0$ . The second term of  $\Delta_{AS}$  reproduces this calculation, but for each of the thirteen age bands, and then sums these to reach the combined effect of population growth and change in the age structure. Subtracting the  $\Delta_{PG}$  yields the number of new households we could expect from change in the age structure net of population growth. The remainder of household change after  $\Delta_{PG}$  and  $\Delta_{AS}$  have been accounted for, is assigned to change in the rate at which people form households,  $\Delta_{HR}$ .

We run the decomposition for all adults, as well as, for men and for women. For the gender-specific cases, we compare male or female headship rates to the male or female adult population. We run the decomposition on the census data because this data source should be less biased in the capture of small households compared to the OHS (Kerr & Wittenberg 2015). This is pertinent for accurately capturing the headship rates of gender-age groups more likely to be single-person households, e.g. young men. The decomposition runs 1996-2011 using census data, and then 1996-2005 and 2005-2011 using the 2005 GHS data. We choose 2005 because Figure 2 shows that this year corresponds with an inflection point in the rate of household formation. As such, household formation could be different before and after this year and 2005 could be an informative point at which to break the series.

## 6.2 Regression

We set up a series of headship models where the household head is conceptualised as the household founder. There exists a literature discussing the usefulness of the household head denotation, which is criticised as being patriarchal and meaning different things to different people (i.e. it is conceptually incoherent) (Budlender 2003, Rogan 2016). Posel (2001) uses data from KwaZulu Natal, a province in South Africa, to compare household headship with its common definitions: age, economic importance, and decision-making. She finds that headship is highly correlated with being the oldest household member and being the highest income earner. Importantly for this research, Posel (2001) finds that headship is most strongly correlated with being the primary decision-maker. We therefore contend that headship is capturing relevant information for our purposes. We set up a series of linear probability models of headship where each model is designed to deal increasingly better with the problem of omitted variable bias. This strategy is motivated because the literature on household size is vast and presents a long list of possible explanations for household formation, many of which we do not have in our data set. We run the following regressions:

$$HEAD_i = \beta_0 + \beta_1 \mathbf{ECON}_i + \beta_2 \mathbf{PREF}_i + \beta_3 \mathbf{INST}_i + \epsilon_i \quad (4)$$

$$HEAD_{ict} = \beta_0 + \beta_1 \mathbf{ECON}_{ict} + \beta_2 \mathbf{PREF}_{ict} + \beta_3 \mathbf{INST}_{ict} + \alpha_c C_c + \gamma_t T_t + \epsilon_{ict} \quad (5)$$

$$\overline{HEAD}_{ct} = \beta_0 + \beta_1 \overline{\mathbf{ECON}}_{ct} + \beta_2 \overline{\mathbf{PREF}}_{ct} + \beta_3 \overline{\mathbf{INST}}_{ct} + \alpha_c C_c + \gamma_t T_t + \overline{\epsilon}_{ct} \quad (6)$$

$$\Delta \overline{HEAD}_{ct} = \beta_0 + \beta_1 \Delta \overline{\mathbf{ECON}}_{ct} + \beta_2 \Delta \overline{\mathbf{PREF}}_{ct} + \beta_3 \Delta \overline{\mathbf{INST}}_{ct} + \alpha_c \Delta C_c + \gamma_t \Delta T_t + \Delta \overline{\epsilon}_{ct} \quad (7)$$

$HEAD_i$  is an indicator variable equal to one if the individual is the self-identified head of the household. The subscripts  $i$ ,  $c$ , and  $t$  stand for individual, cohort, and time, respectively. All equations are run for a pooled, male, and female sample and limited to those aged 15 and above. The regression models are all run on a common set of covariates based on theory, grouped into economic (**ECON**), institutional (**INST**), and preference/socio-demographic (**PREF**) categories. **ECON** includes labour market status, the log of per capita monthly household earnings and a set of dummies for access to social grants, assets or services. We assign a nominal value of per capita household earnings to the considerable number of households in the sample with no earners, but then also include a dummy indicating whether households were zero-earner households or not. The advantage of this approach is firstly to prevent the zero-earner households dropping out the sample when the variable is logged, and secondly to yield a coefficient on the effect of being a zero-earner household. The dummies we include are: a female pension recipient in the household; a male pension recipient in the household; another grant recipient in the household; access to a flush toilet inside or on-site; access to piped water inside or on-site; access to electricity as the household's main source of lighting; access to electricity or gas as the household's main energy source for cooking; total number of rooms (a continuous and not a dummy variable); and, household access to a cellphone. This is our preferred specification of the **ECON** variables, but later on we explain our motivation and variations of this specification based on the quality of the income variables. **INST** covers marital status and we are forced to combine those who are married with those who are cohabiting into one general 'married' category due to data limitations in the GHS. In **PREF** we try to account for socio-demographic and preference-influencing factors and life-cycle factors. It includes, age, age squared, population group, the number of children under 15 years in the household, urban location, and household size. We begin with a pooled OLS in equation 4; we add cohort and time fixed effects in equation 5; followed by a pseudo-panel set up in equation 6 and a first-difference in equation 7. As we move from the pooled OLS to the pseudo-panel, our model gets better at controlling for potential omitted variables, but the the data is also coarsened in the process and variation is lost. It is therefore worth reporting all of the models because there is this trade-off between bias and precision in estimates.

The cohorts in equations 5-7 are used to control for, and later to inspect, the effect of generation on household headship. We use two different types of cohort depending on the model. We use birth cohorts defined as  $[birth\ cohort = survey\ year - age]$  for the fixed effects regressions in equation 5. It is this model that we use to interpret the effect of generation. When we use the birth cohorts, we limit the sample to those born in or after 1940 to keep a decent sample size in especially the early cohorts. In an effort to report results neutral to the base category, we report our results as an average of the same specification run using six different base years: 1940, 1950, 1960, 1970, 1980, and 1990. We also report the results relative to the base of 1940 for ease of interpretation in the appendix. The set-up of the pseudo-panel follows Deaton (1997). In this process, the data set is transformed to be at the cohort level. Variables are averaged at the cohort level to arrive at a data set made up of  $year*cohort$  observations as in equation 6, and representing a cost to variation. The process of aggregation controls most effectively for omitted variables but introduces an errors-in-variables problem. If equation 6 and 7 are the population means, and we replace these with the observed means from the sample, we face a measurement error problem. We can still obtain consistent estimates of  $\beta_{ct}$  using Deaton’s corrected estimator. Although, if the cohort samples are large enough for the means to be precisely estimated, the error-in-variables correction is small enough to ignore. Deaton (1997) suggests that for cohorts constructed using five year age bands, this should be the case. For this model then, we use 12 five-year birth cohorts where the oldest cohort are born between 1934 and 1938, and the youngest, between 1989 and 1993. Note that we construct the data as in equation 6 but run only report the first difference in equation 7. We also weight this regression by cohort size.

Income is a central variable theoretically and empirically in the household formation literature, making it important that it is properly captured in our model. Unfortunately, there is variation in the type and quality of income variables found across surveys in the OHS-GHS. Both the OHS and the GHS have variables for individual monthly earnings and whether households include monthly social grant recipients, but only the GHS has a total monthly household expenditure variable which is in bracket format only. Our preferred specification of **ECON** described above uses the continuous earnings data available across all years and supplements this with bracket midpoints for those who responded in this way.<sup>17</sup> Our preferred specification is therefore more detailed and is better at capturing expanded access to services and grants provided by government, for example. We run this specification for the full period, 1995-2011, with the exception of the years 1996 and 1999 because the average of real earnings appeared unrealistically high in these years in comparison to the rest of the series, leading us to doubt the quality of the earnings data in these years. A variation of the specification of **ECON** reported in the appendix and briefly discussed in the text, is to separate individual from other household income. This specification includes all the same variables as our preferred **ECON** specification but breaks up logged per capita real monthly household earnings into two variables: logged per capita real monthly individual earnings and logged per capita other monthly household earnings. Other household earnings was derived by first totalling household earnings and then subtracting the relevant observation’s earnings. In cases where other household earnings were then negative or zero, we assigned a nominal value to keep them in the sample. We run a third and final robustness check using the expenditure variable in the GHS. Total household income is a more comprehensive variable than total household earnings and would be preferred if the quality and coverage of this variable were better. However, expenditure in the GHS is reported in nine nominal Rand brackets which have not been updated over time. The result is that the share of households falling into the top bracket changed from 2 percent in 2002 to 9.64 percent in 2011. Further, we have to exclude the OHS period if we use this expenditure variable. We therefore run a robustness specification on the GHS period only, where the **ECON** category only includes labour market status and log per capita monthly real income and

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<sup>17</sup>We have not done the analysis for the GHS, but the authors of the PALMS data which includes the OHS and the LFS note that bracket respondents are systematically different from continuous Rand respondents. Therefore, these authors calibrate a special weight for the PALMS data set to account for this bias. We have no such weight and so this is a potential source of bias in the earnings data. In the GHS period, the share of earners responding in brackets was roughly 30 percent in most years and the average real earnings for bracket respondents was twice that of continuous Rand respondents.

report this in the appendix. All expenditure and earnings data are converted to real 2016 Rands.

## 7 Decomposition results

The decomposition assists in answering the research question ‘how has household formation changed over the post-apartheid era?’ with gender as the main analytical category. One way in which household formation is different in South Africa compared to the developed world, is positive change in headship rates; that is, genuine acceleration in people sorting into households over and above that driven by demographic change alone. Table 4 below decomposes the change in the number of households over a period into three sources following McCue et al. (2015): growth in the adult population, change in the age structure of the population, and, change in the headship rate. McCue et al. (2015) applied this decomposition to the US population between 2004 and 2013 and noted negative headship rate change over time. Rising numbers of households in the US were mainly driven by population growth, but, also by the aging of the abnormally large baby-boomer cohort entering smaller retirement-age household compositions. Headship rates contracted especially for those aged 15-24 and 25-30 years. In other words, genuine new household formation was decreasing and the formation of new households was attributable to demographic processes only.

By contrast, Table 4 shows that positive change in headship rates contributed significantly to household growth in South Africa. This is expected given Figure 3 showing an increase in mainly female headship rates in older age categories. Population growth accounts for 77 percent of new households between 1996 and 2011, but the remainder is evenly split between contributions from a changing age structure and positive headship rates. Of the 5.4 million households added to the household stock between 1996 and 2011, about 600 thousand of these, or just over ten percent, were due to positive change in headship rates. This implies that there is real behavioural change in the patterns by which people are forming households in South Africa.

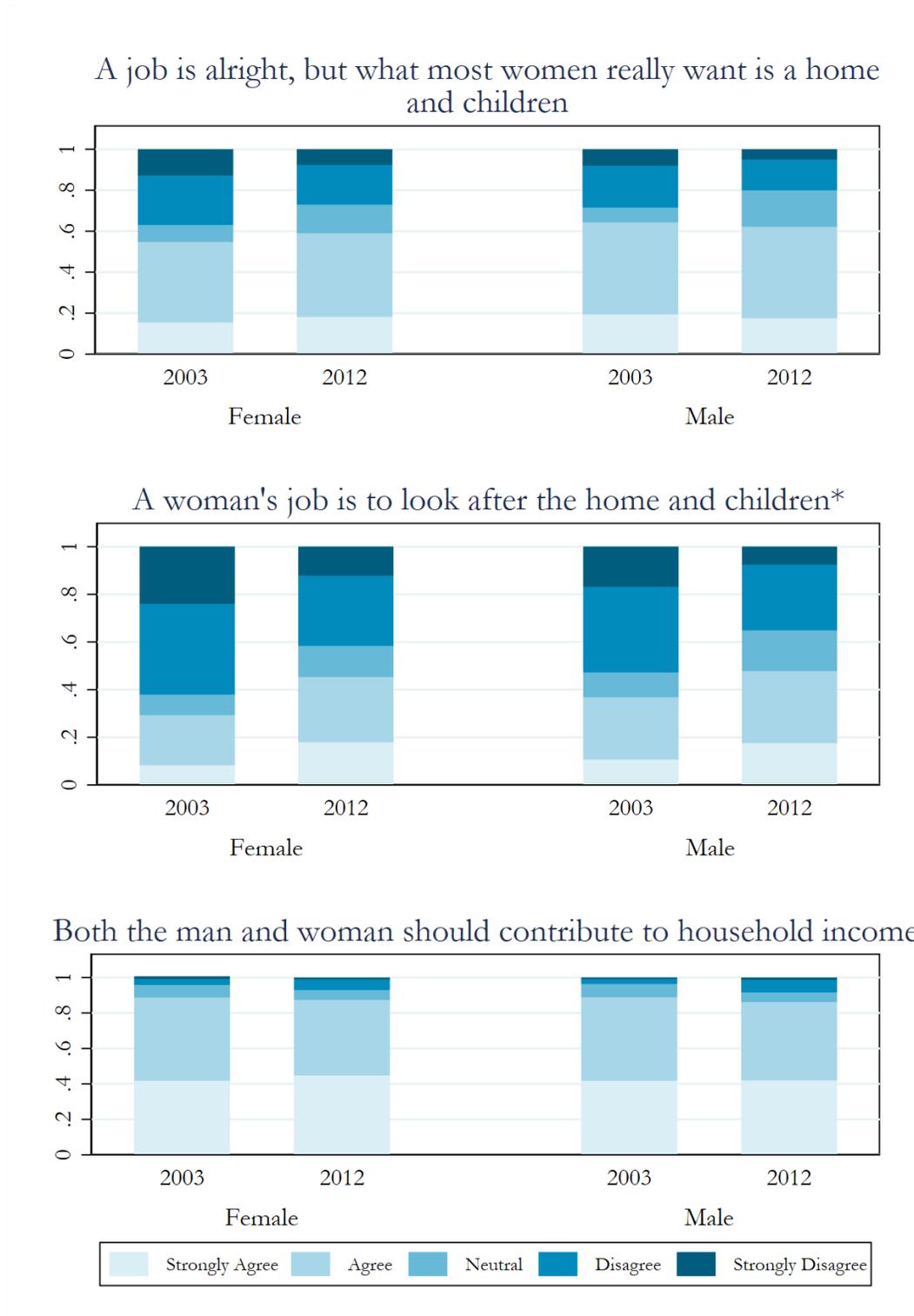
The decomposition yields quite different results by gender. Women contributed 2.5 million households over the period 1996 - 2011, and men, 2.8 million. A full third of the new female-headed households added in this period was due to increased household formation. If women had continued to form households at the rate they were doing so in 1996 and only grew their population, we would expect just over half the households actually observed, or 1.3 million. Based on their 1996 rate of household formation, male population growth leads us to expect a bigger increase in male-headed households than what we actually observed. We would expect about 2.9 million new male-headed households, but only see 2.8 million. This result is owed to a slowing of the rate at which men are forming households. The male headship rate contracted by 17 percent.

Table 4 also investigates the period as divided by 2005. This is because there appears to be an inflection point in the rate of household formation in this year, before which the rate is decreasing and after which it was increasing. Household formation behaviour may then be different in these two periods. The main difference between these two periods appears to be the sign on male headship change. Male headship change was large and negative between 1996 and 2005, and small and positive in the later period. Between 1996 and 2005, there was a substantial deceleration in the rate at which men were forming households by as much as a third, or half a million households. This was matched by a roughly equivalent increase in the rate at which women were forming households. As such, men and women both contributed about 1.5 million new households between 1996 and 2005. Between 2005 and 2011, though, men had increased the rate at which they formed households, and female headship change was moderated slightly, although still high.

Men are still much more likely to be heads than women and contributed more new households between 1996 and 2011. However, this was by a smaller margin than may have been expected: men contributed only just over half (53 percent) of new households. At the same time, the decomposition reveals diverging patterns in household formation behaviour. There appears to be a sustained acceleration in headship change by women. Although male headship change was initially negative, this changed in the later part of the period. Going forward, this may mean that South African household

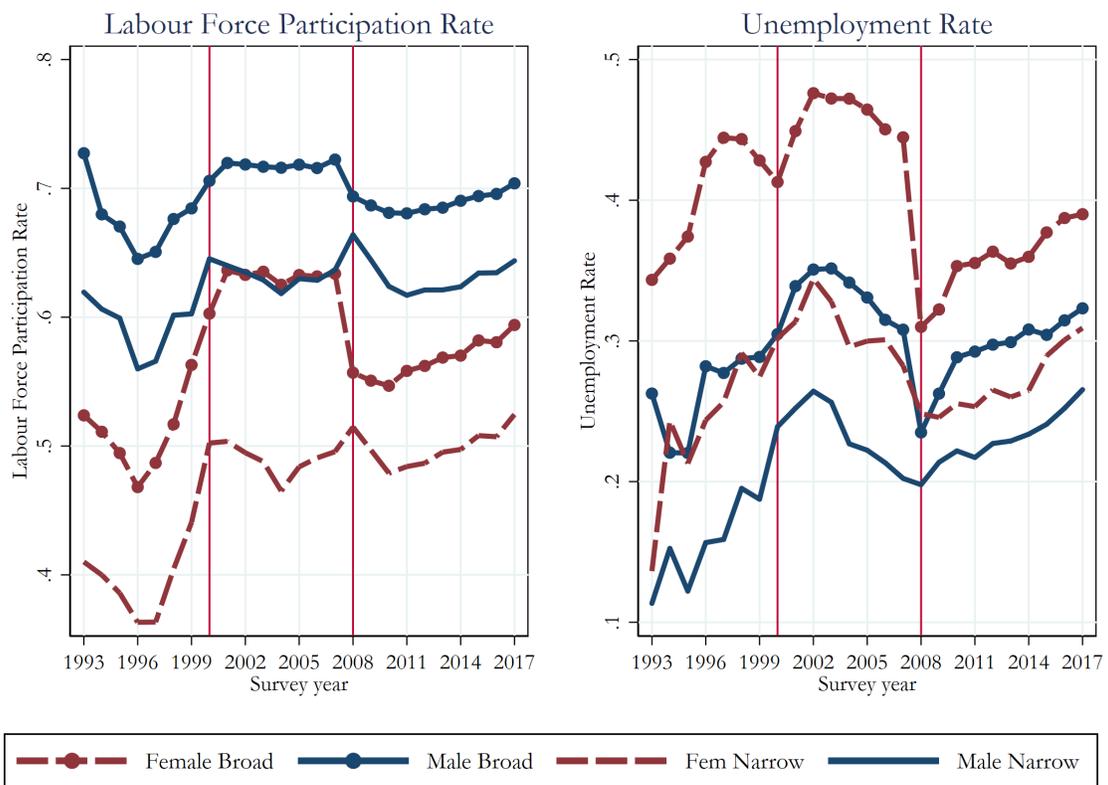
formation will continue to be rapid.

**Figure 6:** Gender Attitudes in South Africa, 2003 and 2012



Notes: own calculations the South African Social Attitudes Survey (SASAS) 2003 and 2012 using sampling weights. Sample restricted to those aged 16 and older. \* This statement varied across years and the reported title reflects the common segment: In 2003, the statement was "A woman's job is to look after the home and family rather than go out and work". In 2012, the statement was "A man's job is to earn money; a woman's job is to look after the home and family".

**Figure 7:** Labour Force Participation and Unemployment in the Post-apartheid Period, by Gender



Notes: own calculations using the Post-Apartheid Labour Market Series (PALMS) adjusted using cross-entropy weights. Sample limited to those aged 15 and older. We use the 'employed preferred' variable to define employed people.

**Table 4:** Decomposition of Household Formation over the Post-apartheid Period in South Africa by Gender

| Source of Household Growth                                 | 1996-2005 |          |                 | 2005-2011 |        |                 | 1996-2011 |          |                 |
|--|-----------|----------|-----------------|-----------|--------|-----------------|-----------|----------|-----------------|
|  | MEN       | WOMEN    | ALL             | MEN       | WOMEN  | ALL             | MEN       | WOMEN    | ALL             |
| <b>Growth in the Adult Population</b>                      |           |          |                 |           |        |                 |           |          |                 |
| - <i>millions</i>  | 1 937.24  | 861.69   | <b>2 660.72</b> | 971.67    | 596.20 | <b>1 554.55</b> | 2 963.29  | 1 375.41 | <b>4 152.12</b> |
| - <i>share</i>   | 1.26      | 0.56     | <b>0.84</b>     | 0.73      | 0.62   | <b>0.70</b>     | 1.03      | 0.55     | <b>0.77</b>     |
| <b>Change in the Age Structure of the Adult Population</b> |           |          |                 |           |        |                 |           |          |                 |
| - <i>millions</i>  | 122.62    | 108.84   | <b>235.53</b>   | 214.46    | 156.77 | <b>336.21</b>   | 391.76    | 264.05   | <b>626.61</b>   |
| - <i>share</i>   | 0.08      | 0.07     | <b>0.07</b>     | 0.16      | 0.16   | <b>0.15</b>     | 0.14      | 0.10     | <b>0.12</b>     |
| <b>Headship Rate Changes</b>                               |           |          |                 |           |        |                 |           |          |                 |
| - <i>millions</i>  | - 523.60  | 580.25   | <b>260.71</b>   | 147.93    | 216.13 | <b>342.79</b>   | - 484.73  | 880.42   | <b>611.78</b>   |
| - <i>share</i>   | - 0.34    | 0.37     | <b>0.08</b>     | 0.11      | 0.22   | <b>0.15</b>     | - 0.17    | 0.35     | <b>0.11</b>     |
| <b>Total</b>   |           |          |                 |           |        |                 |           |          |                 |
| - <i>millions</i>  | 1 536.26  | 1 550.78 | <b>3 156.96</b> | 1 334.06  | 969.10 | <b>2 233.55</b> | 2 870.32  | 2 519.87 | <b>5 390.52</b> |
| - <i>share</i>   | 1.00      | 1.00     | <b>1.00</b>     | 1.00      | 1.00   | <b>1.00</b>     | 1.00      | 1.00     | <b>1.00</b>     |

Notes: own calculations using the 1996 and 2011 census ten percent samples and the 2005 GHS. During the calculations, household counts and headship rates were household-weighted in the censuses and person counts were person-weighted. The cross-entropy weight was used for the GHS, throughout. Sample limited to those aged 15 years and older.

## 8 Regression results

The regressions are aimed at helping us understand what motivates people to form their own households or to stay in an existing one and how this has changed over time and over generations. Table 6 presents the regression output for the OLS, fixed effects and first difference on the pseudo-panel with summary statistics for the sample in Table 5. Note the difference in the number of observations between the OLS and fixed effects regressions versus the pseudo panel. There is broad agreement in the direction and relative magnitude of effects, with the pseudo-panel achieving much less statistical significance in general. Some of the standard errors get a bit large in the pseudo-panel regression, likely related to a loss of variation. Despite this, the pseudo-panel regression should suffer the least from omitted variable bias and additionally give us some insight into which factors have been more or less important over time.

The coefficients for marital status are in line with behaviour in a traditional society. Married women are much less likely to be heads compared to never married women, mainly because in a married couple, the male spouse assumes headship (Maisiri et al. 2016). Women who have never been married, are 26-7 percentage points more likely to form their own households than those who are married, according to all three models. By contrast, married men are 33-37 percentage points more likely to be household heads than men who have never been married. Whilst this is not a standout result in terms of the coefficient for individual-level behaviour, the society-wide levels of never married female heads are very high in Table 3. In Section 5 previously, we made the point that the shares of female heads who have never been married are more comparable with developed than developing countries and that South Africa has a very unusual marriage profile for a country in the FDT.

Divorce makes women about 22-23 percentage points more likely to be households heads than never married women. If we apply our patriarchal conceptualisation of household formation then, upon marriage, the male partner is more likely to assume the household head position. It follows, then, that divorce pushes many women into headship in a way that the advent of marriage does not in South Africa. In the developed world, increasing divorce rates have been cited as a possible driver of increased household formation and especially the rise of single-person households (Peichl et al. 2012). Single person households are also on the rise in South Africa, but divorce has remained relatively low and stable over the period, in line with South Africa's FDT profile. The first difference shows that the change (or, rather, the stability at the cohort-year level) in divorced women compared to the change in never married women, did not have a significant effect on the change in likelihood of female headship. The more pertinent effect for female headship is not one of union dissolution, but of not forming the union at all when taking both the regression coefficients and summary statistics in Tables 6 and 5 together. Possibly, increased mortality from the HIV/AIDS virus also took a toll as widowhood increased quite substantially at the cohort-year level for both genders in Table 5, although this was not significant in the first difference.<sup>18</sup> In general, divorce did not account for a large share of female heads in Table 3 at only 8.44 percent in 2011. This is only a few percentage points more than the 5 percent share of divorced female heads in the ultra-conservative setting of Iran in 2006 (Aghajanian & Thompson 2013). The rise in never married female heads represents a break with the usual reasons people form households in a traditional context.

Moving to economic effects, unemployment and NEA-status have the expected signs. Both undermine the chance that someone will form a household compared to if they were employed and this effect remains strong and significant in the first difference. The change over time is slightly stronger for men. The change in female unemployment compared to employment has diminished the change in the chance of female headship by 22 percentage points. The same effect reduced the change in the likelihood of male headship by 54 percentage points. Per capita household earnings has ambiguous effects that are too small to call economically important. This may seem counter-intuitive but has been found elsewhere in the literature (Edmonds et al. 2005, Keller 2004, Klasen & Woolard 2009). Keller (2004) found similarly insignificant effects of income for the household formation process of Black

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<sup>18</sup>Weighting by cohort size would have weighted up older cohorts and weighted down younger cohorts.

South African men. She finds that household income either had an insignificant or negative effect on household formation in a multilevel model that jointly determined labour market status and household membership. The overall intuition, is that the poorly resourced will stay attached to resources they have access to within a household, rather than strike out (Klasen & Woolard 2009, Keller 2004). In South Africa’s restrictive labour market, job opportunities are comparatively harder to come by than in a developed economy making moving out without a job that much more risky.

In light of this, the findings in Table 6 are understandable. Income has ambiguous effects: on the one hand it enables someone to move out, but if you live in a household with resources, it may be more financially sensible to stay. The effect of being in a zero-earner household can therefore be similarly interpreted. Minimal access to resources offered by continued household membership motivates a person to leave. A man living in a zero earner household was about 9 percentage points more likely to be a head. This effect translated strongly over time for men only, even though the increase in the shares of men and women living in zero-earner households at the cohort-year level in Table 5 is relatively similar. This increase in men living in zero earner households increased the chance of male headship by 27 percentage points. Search for work is an important motivator of the household formation decision in South Africa. Even though they are less likely to be married or searching for work, women are still forming households, and increasingly so.

We also run two additional specifications using variations of the economic variables. The results run using household expenditure on only the GHS period are in Table 7 and are in agreement with the results using earnings and assets. In an effort to separate out the ambiguous effects of income, we run an additional specification reported in Table 8 that breaks up per capita household earnings into the per capita portion earned by the individual observation and the remainder of per capita household earnings attributable to all other household members, in a similar specification to Keller (2004). Personal income has a significant positive impact on headship in line with theory and is significant in the first difference; whilst, other income has a negative effect, in line with the rationality of staying with resources. This more nuanced capturing of income switches the signs on the labour market and zero earner coefficients, both of which are rationalised around search activity. When we more clearly control for the reason employed people are heads (income), we see they are more likely to stay to maintain access to that income, while others go in search.

Access to pension income, the biggest social grant in the South African schedule of social transfers, delays moving out. These results are consistent with Edmonds et al. (2005) and Keller (2004), as are the results by gender of the pensioner. A pensioner of either gender reduces the chance that a woman will be a household head by about ten percentage points or more. By contrast, a female pensioner delays male movement much more than a male pensioner. This is the only effect that translates as statistically significant in the first difference, despite a much larger change for women. The share of women living in households with female pensioners increased by about 120 percent at the cohort-year level between 1995 and 2011; the share of men increased by about 60 percent, by comparison (see Table 5). The change in men living in households with female pensioners slowed the chance of male household formation by 19 percentage points. Keller (2004) relates this gendered effect to lack of female compared to male bargaining power. Access to assets or basic services has similarly ambiguous or small effects compared to income and can be interpreted in a similar way to total household earnings. Having access to electricity for lighting, or a flush toilet, is a good reason to stay in a household. The latter is especially true for women. The only asset that is important in the first difference is men having access to a flush toilet and in this instance it is positive. The difference in men living in households with flush toilets increased the chance of male headship. One explanation for this may be that flush toilets, more than the other assets and services, may be closely aligned with income as it was the asset that started from the lowest base of coverage and remained the least universal in 2011. Another consideration is that the number of male single person households has increased quickly over the period and the toilet variable in this regression includes flush toilets on site, but due to questionnaire limitations in certain years could not be restricted to whether this was a shared or private toilet. In other words, this could reflect single males living in flats or hostels.

Age has the expected signs: the chance of being a head increases with age before dipping off at a late

stage. Differences in population group emerge. *Ceteris paribus*, White, Asian/Indian, and Coloured people are all less likely to form their own households compared to African people even though all these groups have a smaller household size than Africans. Indeed, African households shrank the quickest by almost a full person. Africans started the period with the highest average household size in 1996 and moved into second place behind Coloured people by 2011. The difference between white and African men was the only effect that was significant in the first difference. It makes sense that population groups with very different union formation trajectories would also have very different household formation trajectories since these two processes are so closely linked. People of either gender were more likely to delay moving out when living in the city. This could be because already being in an urban location usually implies proximity to economic opportunities; whereas, if you are living in a rural area you would need to move to find work. This result was very strong for men in the first difference, perhaps reflecting entrenched patterns of labour migration. Finally, the signs on the number of children in the household and household size were in the expected direction. The more children there are in the household, the more likely it is that an individual will move. An additional child in the household increases the chance that a woman will be a household head by 6 percentage points in the OLS and fixed effects. This is an important variable because it provides an indirect view of the impact of declining fertility on household formation in the first difference. The average number of children per household declined for the female sample at the weighted cohort-year level in Table 5, meaning the *reduction* in the number of children per household significantly increased the chance of female headship by 8 percentage points in the first difference. This falls in line with the general idea that falling fertility has contributed to smaller households and more households due to fewer children and less need for childcare. From theory, we know that household size proxies for how preferences for more privacy are traded off against increased economies of scale. As such, in the first difference, household size significantly works to reduce the chance that either gender will move out.

## 9 Regression results: Generational change

Our last empirical exercise is to inspect the cohorts in the fixed effects regression for generational patterns. We include 61 birth cohorts and then subtract 1994 from the birth year to calculate age at the first democratic election. This should allow for a meaningful interpretation of how generation intersects with regime change. As mentioned in the methodology section, we tried to remove the influence of a single base year by averaging across a few different years. The sample was limited to those born in or after 1940 and we captured the coefficients using six evenly spaced base years: 1940, 1950, 1960, 1970, 1980 and 1990. We then report the average of these per age at election in Figure 8. The appendix includes the same graph with only 1940 as the base (Figure 9), as well as, the averaged coefficient version of the alternative regression specification using total household expenditure, instead of household earnings and assets (Figure 10). The discussion below comments on the similarities and differences between these approaches.

The preferred Figure 8 shows that there are important generational effects by gender and population group. In this instance, population group is an important analytical category because of the racial nature of the previous regime meaning we would expect different effects by race as argued in Section 5. More specifically, we would expect White people to be less responsive to the regime change than other groups because there was negligible change in their *de facto* living arrangements during and after apartheid. By contrast, a number of apartheid-era Acts restricting where Black populations could live were repealed in the 90s. Further, the apartheid regime came down more strictly on Black African women than men. Black African women were especially disadvantaged because they were considered minors in the eyes of apartheid law (Venter 1995). This meant they could not own property at all and were the wards of their husbands, fathers, and brothers. This made Black African women more reliant than others on the men in their lives for provision of shelter.

What emerges in Figure 8 is that Black (Coloured and African) women who were prime-aged (20-45 years) at the time that apartheid was being dismantled, are more likely to move out and be household

**Table 5:** Summary Statistics for Pooled Individual and Cohort-Year Pseudo-Panel Samples

|   | Pooled (Individual) |          | Pseudo-Panel (Cohort-Year) |         |          |          |
|---|---------------------|----------|----------------------------|---------|----------|----------|
|   | Men                 | Women    | Men                        |         | Women    |          |
|   |                     |          | 1995                       | 2011    | 1995     | 2011     |
| <b><u>Institutional</u></b>                 |                     |          |                            |         |          |          |
| MS: Never Married (%)                       | 55.62               | 47.16    | 55.56                      | 54.50   | 46.89    | 46.49    |
| MS: Married (%)                             | 40.25               | 38.34    | 41.87                      | 40.96   | 44.26    | 39.62    |
| MS: Widowed (%)                             | 2.14                | 10.88    | 0.84                       | 2.61    | 5.20     | 10.18    |
| MS: Divorced/ Separated (%)                 | 1.94                | 3.59     | 1.72                       | 1.92    | 3.66     | 3.71     |
| <b><u>Economic</u></b>                      |                     |          |                            |         |          |          |
| LM: Employed (%)                            | 45.93               | 30.50    | 50.82                      | 52.79   | 31.78    | 37.42    |
| LM: Unemployed (%)                          | 22.47               | 25.94    | 19.65                      | 23.71   | 24.69    | 26.84    |
| LM: NEA (%)                                 | 31.59               | 43.56    | 29.53                      | 23.50   | 43.52    | 35.73    |
| Per Capita HH Earnings (ZAR)                | 3 383.17            | 2 924.11 | 2 642.40                   | 5021.43 | 2 305.08 | 4 743.79 |
| Zero Earner HH (%)                          | 29.45               | 35.96    | 23.21                      | 26.79   | 29.74    | 32.42    |
| Female Pensioner in HH (%)                  | 15.04               | 20.41    | 7.88                       | 12.75   | 8.05     | 18.10    |
| Male Pensioner in HH (%)                    | 10.46               | 8.50     | 4.67                       | 9.68    | 4.72     | 7.51     |
| Other Grant Recipient in HH (%)             | 28.30               | 36.71    | 7.53                       | 37.15   | 7.76     | 51.43    |
| Flush Toilet On Site (%)                    | 57.51               | 53.91    | 39.59                      | 61.60   | 36.60    | 59.75    |
| Piped Water On Site (%)                     | 70.45               | 67.37    | 68.94                      | 74.71   | 64.08    | 73.31    |
| Electricity for Lighting (%)                | 79.95               | 78.95    | 63.10                      | 86.26   | 58.29    | 87.71    |
| Electricity/Gas for Cooking (%)             | 66.40               | 63.60    | 59.01                      | 76.46   | 54.44    | 76.09    |
| Number of Rooms                             | 4.69                | 4.81     | 4.69                       | 5.40    | 4.70     | 5.56     |
| Cellphone in HH (%)                         | 0.59                | 0.59     | 1.80                       | 91.98   | 1.52     | 93.93    |
| <b><u>Preferences/Socio-Demographic</u></b> |                     |          |                            |         |          |          |
| Age   | 34.99               | 36.98    | 31.73                      | 36.62   | 32.35    | 38.12    |
| PG: African (%)                             | 75.75               | 76.26    | 74.24                      | 76.95   | 74.89    | 77.22    |
| PG: Coloured (%)                            | 9.17                | 9.26     | 9.39                       | 9.08    | 9.51     | 9.38     |
| PG: Asian/Indian (%)                        | 2.94                | 2.74     | 3.06                       | 3.06    | 2.87     | 2.79     |
| PG: White (%)                               | 12.12               | 11.73    | 13.31                      | 10.90   | 12.73    | 10.61    |
| Urban (%)                                   | 64.82               | 60.87    | 55.91                      | 68.58   | 51.89    | 65.55    |
| No. Children < 15 years in HH               | 1.32                | 1.76     | 1.66                       | 1.08    | 2.05     | 1.59     |
| HH Size                                     | 4.91                | 5.35     | 5.68                       | 4.37    | 5.91     | 4.96     |
| <b>Heads (%)</b>                            | 46.49               | 28.89    | 41.38                      | 52.73   | 21.08    | 33.19    |
| <b>Observations</b>                         | 415 853             | 500 559  | 10                         | 12      | 10       | 12       |

Notes: own calculations using the OHS-GHS series adjusted using cross-entropy weights and with sample limited to those aged 15 years and older in all cases. The pooled sample includes years 1995, 1997, 1998 and 2002-2011. Pseudo-panel summary statistics calculated by first averaging variables at the cohort-gender-year level and then taking the mean at the year-gender level, weighted by cohort size. We manually confirmed that the average of the year-on-year difference for all years between 1995 and 2011 is in the same direction for every variable as the difference between 1995 and 2011. ZAR = South African Rands in real 2016 values. Mutually exclusive dummies: MS = Marital status dummies, note 'married' includes 'cohabiting'; LM = Labour market status dummies; PG = Population group dummies.

**Table 6:** Regression Output for Probability of Household Headship in South Africa, by Gender

| Depvar: Headship<br>Sample           | OLS                |                           | FIXED EFFECTS      |                           | PSP: FIRST DIFF    |                           |
|--------------------------------------|--------------------|---------------------------|--------------------|---------------------------|--------------------|---------------------------|
|                                      | Men                | Women                     | Men                | Women                     | Men                | Women                     |
| <u>Institutional</u>                 |                    |                           |                    |                           |                    |                           |
| MS: Married                          | 0.37***<br>(0.00)  | <b>-0.26***</b><br>(0.00) | 0.37***<br>(0.00)  | <b>-0.26***</b><br>(0.00) | 0.33***<br>(0.09)  | <b>-0.27***</b><br>(0.07) |
| MS: Widowed                          | 0.23***<br>(0.00)  | <b>0.29***</b><br>(0.00)  | 0.24***<br>(0.00)  | <b>0.30***</b><br>(0.00)  | -0.05<br>(0.21)    | <b>0.04</b><br>(0.11)     |
| MS: Divorced/Separated               | 0.09***<br>(0.00)  | <b>0.23***</b><br>(0.00)  | 0.10***<br>(0.00)  | <b>0.22***</b><br>(0.00)  | 0.07<br>(0.27)     | <b>0.15</b><br>(0.19)     |
| <u>Economic</u>                      |                    |                           |                    |                           |                    |                           |
| LM: Unemployed                       | -0.18***<br>(0.00) | <b>-0.17***</b><br>(0.00) | -0.18***<br>(0.00) | <b>-0.16***</b><br>(0.00) | -0.54***<br>(0.11) | <b>-0.22**</b><br>(0.08)  |
| LM: NEA                              | -0.14***<br>(0.00) | <b>-0.13***</b><br>(0.00) | -0.14***<br>(0.00) | <b>-0.13***</b><br>(0.00) | -0.35***<br>(0.09) | <b>-0.19**</b><br>(0.07)  |
| Log Per Capita HH Earnings           | 0.00***<br>(0.00)  | <b>-0.01***</b><br>(0.00) | 0.00***<br>(0.00)  | <b>-0.02***</b><br>(0.00) | 0.01<br>(0.01)     | <b>0.01</b><br>(0.01)     |
| Zero Earner HH                       | 0.09***<br>(0.00)  | <b>0.04***</b><br>(0.00)  | 0.09***<br>(0.00)  | <b>0.05***</b><br>(0.00)  | 0.27*<br>(0.13)    | <b>0.14</b><br>(0.13)     |
| Female Pensioner in HH               | -0.14***<br>(0.00) | <b>-0.09***</b><br>(0.00) | -0.15***<br>(0.00) | <b>-0.11***</b><br>(0.00) | -0.19*<br>(0.09)   | <b>-0.07</b><br>(0.04)    |
| Male Pensioner in HH                 | -0.00<br>(0.00)    | <b>-0.13***</b><br>(0.00) | -0.02***<br>(0.00) | <b>-0.13***</b><br>(0.00) | 0.05<br>(0.04)     | <b>-0.00</b><br>(0.03)    |
| Other Grant Recipient in HH          | -0.05***<br>(0.00) | <b>-0.02***</b><br>(0.00) | -0.05***<br>(0.00) | <b>-0.02***</b><br>(0.00) | -0.03<br>(0.05)    | <b>-0.08</b><br>(0.04)    |
| Flush Toilet On Site                 | -0.00<br>(0.00)    | <b>-0.02***</b><br>(0.00) | -0.00**<br>(0.00)  | <b>-0.02***</b><br>(0.00) | 0.13*<br>(0.06)    | <b>0.07</b><br>(0.05)     |
| Piped Water On Site                  | 0.00<br>(0.00)     | <b>-0.01***</b><br>(0.00) | 0.00<br>(0.00)     | <b>-0.01***</b><br>(0.00) | 0.01<br>(0.14)     | <b>-0.11</b><br>(0.12)    |
| Electricity for Lighting             | -0.01***<br>(0.00) | <b>-0.00**</b><br>(0.00)  | -0.02***<br>(0.00) | <b>-0.01***</b><br>(0.00) | 0.09<br>(0.14)     | <b>0.14</b><br>(0.12)     |
| Electricity/Gas to Cook              | 0.02***<br>(0.00)  | <b>0.01***</b><br>(0.00)  | 0.02***<br>(0.00)  | <b>0.01***</b><br>(0.00)  | -0.06<br>(0.11)    | <b>-0.15</b><br>(0.10)    |
| No. of Rooms                         | -0.01***<br>(0.00) | <b>-0.01***</b><br>(0.00) | -0.01***<br>(0.00) | <b>-0.01***</b><br>(0.00) | 0.00<br>(0.01)     | <b>0.00</b><br>(0.01)     |
| Cellphone in HH                      | 0.01***<br>(0.00)  | <b>0.01***</b><br>(0.00)  | -0.00<br>(0.00)    | <b>0.01***</b><br>(0.00)  | -0.02<br>(0.06)    | <b>-0.03</b><br>(0.05)    |
| <u>Preferences/Socio-Demographic</u> |                    |                           |                    |                           |                    |                           |
| Age                                  | 0.02***<br>(0.00)  | <b>0.03***</b><br>(0.00)  | 0.01***<br>(0.00)  | <b>0.02***</b><br>(0.00)  | 0.00<br>(0.01)     | <b>0.02</b><br>(0.01)     |
| Age2                                 | -0.00***<br>(0.00) | <b>-0.00***</b><br>(0.00) | -0.00***<br>(0.00) | <b>-0.00***</b><br>(0.00) | -0.00<br>(0.00)    | <b>-0.00</b><br>(0.00)    |
| PG: White                            | -0.08***<br>(0.00) | <b>-0.15***</b><br>(0.00) | -0.06***<br>(0.00) | <b>-0.13***</b><br>(0.00) | -0.47***<br>(0.13) | <b>-0.16</b><br>(0.14)    |
| PG: Asian/Indian                     | -0.07***<br>(0.00) | <b>-0.10***</b><br>(0.00) | -0.06***<br>(0.00) | <b>-0.09***</b><br>(0.00) | -0.44<br>(0.33)    | <b>-0.13</b><br>(0.29)    |
| PG: Coloured                         | -0.07***<br>(0.00) | <b>-0.07***</b><br>(0.00) | -0.07***<br>(0.00) | <b>-0.07***</b><br>(0.00) | -0.12<br>(0.25)    | <b>-0.07</b><br>(0.20)    |
| Urban                                | -0.00**<br>(0.00)  | <b>-0.01***</b><br>(0.00) | -0.00**<br>(0.00)  | <b>-0.01***</b><br>(0.00) | -0.31***<br>(0.09) | <b>-0.01</b><br>(0.10)    |
| No. Children < 15 yrs in HH          | 0.07***<br>(0.00)  | <b>0.06***</b><br>(0.00)  | 0.07***<br>(0.00)  | <b>0.06***</b><br>(0.00)  | 0.04<br>(0.04)     | <b>0.08**</b><br>(0.03)   |
| HH Size                              | -0.06***<br>(0.00) | <b>-0.06***</b><br>(0.00) | -0.06***<br>(0.00) | <b>-0.06***</b><br>(0.00) | -0.06**<br>(0.02)  | <b>-0.08***</b><br>(0.02) |
| Cohort + Year Dummies                | NO                 | NO                        | YES                | YES                       |                    |                           |
| N                                    | 373652.00          | <b>454033.00</b>          | 352296.00          | <b>419548.00</b>          | 116.00             | <b>116.00</b>             |
| r2                                   | 0.62               | <b>0.48</b>               | 0.62               | <b>0.47</b>               | 0.75               | <b>0.55</b>               |

Notes: own calculations using the OHS-GHS series adjusted using cross-entropy weights for years 1995, 1997, 1998, 2002-2011. Standard Errors in Parenthesis; \* p<0.05, \*\* p<0.01, \*\*\* p<0.001. Sample limited to those aged 15 years and older. PSP = Pseudo-panel. MS = Marital status dummies with 'never married' as the base, also note 'married' includes 'cohabiting'. LM = Labour market status dummies with 'employed' as the base. PG = Population group dummies with 'Black African' as the base.

heads then either their younger or older counterparts. These women were old enough to form their own households when apartheid was ending, and also young enough to still be able to move to take advantage of their new political freedom. Black men have a more divergent trend, possibly related to different urban-rural distributions, with Coloured people being much more urban than Black African people. Much younger African men - those aged about 10-25 years when apartheid ended - are more likely to form new households compared to their older counterparts. This aligns with the decomposition Table 4 that showed positive male headship change in the later part of the period under study, when these men would have grown into age categories with higher headship rates. Again, this could be linked to the growth in single-person households and the continued urbanisation of the Black African population group. Coloured men seem to have the opposite profile: older generations of Coloured men are more likely to form households than younger ones. Although, in Figure 10 Coloured men mimic the female plot very closely.

The contraction amongst younger generations is consistent for Coloured and White people and appears most pronounced for these men who were less than 30 years when apartheid ended. This could be a reflection of poorer economic conditions in the later period after the financial crisis of 2008. Card & Lemieux (1997), for example, show that young people tend to stay at home when local labour conditions are weaker. Although economic conditions were not negative for Whites by comparison to other population groups, this contraction does align with negative change in headship rates amongst younger cohorts observed by McCue et al. (2015) in the US. Younger people are delaying moving out globally for a variety of reasons that are more or less relevant in South Africa, such as lengthening educational careers, high youth unemployment, increasing debt levels, restricted access to state welfare, exclusionary housing markets, and changes in household formation (McKee 2012). Lengthening educational careers and housing markets that are exclusionary for young first-time buyers could be slowing White male household formation (compared to older White men); while, in addition to these, higher youth unemployment may also be a factor for Coloured men.

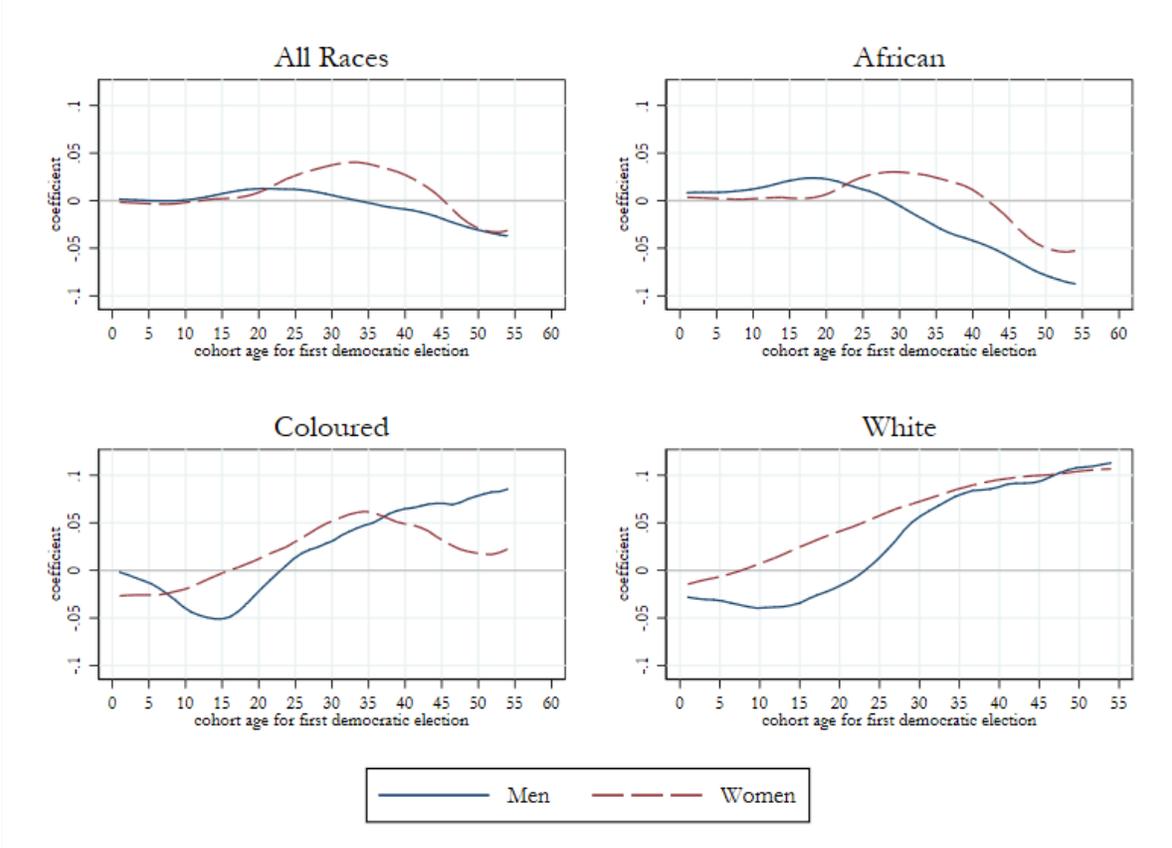
Black African youth can likely be included in this trend of young people staying at home longer even if they are more likely to form households than older Black African generations. The point here is that much older Black African generations were much less likely to form households than older generations of other population groups. This could be because Black Africans in these age groups, who would have been about 60 years and older by 2011, are possibly more likely to be rural-based, but also because they are of importance for childcare and the provision of pension income. Literature we discussed earlier covered how the onset of pension age was associated with a rearrangement of Black African families, as opposed to consolidating independent living of the elderly (Edmonds et al. 2005, Ranchhod 2017). By contrast, older Whites are likely to be living alone like many of the elderly in the West.

The changes in how different generations of White people form households, then, seems to cohere with global patterns, more so than local ones. Note that the overall shape of the White female generational coefficients does seem to differ depending on whether earnings or expenditure are used. Figure 10 in the appendix yields a plot for White women that is quite uniform across the generational distribution before dipping down at older generations. In other words, we get the opposite result that younger women are more likely to form households. These different outcomes are hard to reconcile and could be related to the smaller sample size of White women. We favour the results using earnings and assets and think they are most likely to be accurate. A substantial portion of the earnings variable is continuous, not bracketed, which is important for the White population which is the richest population group. As mentioned in Section 6, the coarse nominal brackets of the expenditure variable mean we cannot see how the top end of the distribution is shifting in later years.

In conclusion for this section, the results suggest that Black women in particular responded to the institutional changes that came with the end of apartheid. Black women, especially Black African women, were the most oppressed group under the apartheid regime and this is preliminary evidence that Black women have in part acted on their new freedom to adjust their living arrangements to better reflect their unrestricted preferences. Younger generations of all groups were more likely to stay at home longer, in line with global trends of delayed home-leaving by young people. This is less clear

for young Black Africans who, although less likely than the prime-aged to form households, are more likely than the aged. However, Black African grandparents are of special importance in childcare and pension income provision meaning it is not unexpected that they would live in bigger households.

**Figure 8:** Propensity to Form a Household based on Age at South Africa’s First Democratic Election



Notes: own calculations using the OHS-GHS panel adjusted using cross-entropy weights. Cohort coefficients are those from the regression in equation (5) with the preferred specification of **ECON** described in the text, reported in Table 6. To report the coefficients neutral of a potentially-influential base cohort, we run the regression several times using six different base cohorts (birth year = 1950, 1960, 1970, 1980, and 1990) and then report here the average of these.

## 10 Conclusion

This paper collects some new insights about household formation a developing setting using the case of post-apartheid South Africa. Using national household survey data for the period, 1995-2011, we find that headship rates have increased most significantly amongst women, with the largest increases amongst older women. Although men are still more likely than women to be household heads, women have sped up the rate at which they form households more so than men when the demographic processes of population growth and change in the age structure are accounted for. Positive change in headship rates represent a break from the pattern in the developed world, where it is mainly demographic processes, and especially population aging, that is driving the formation of new households. What is more consistent with the developed world is that young people are staying at home for longer in South Africa, with some variation by population group.

We tried to gain some understanding of why the pace of South African household formation has increased over the post-apartheid period. Our findings are that unique institutional trends have interacted in important ways with restrictive economic conditions to contribute to the acceleration in household formation. The first of these is the decline of marriage in South Africa as young Black African men face high open unemployment. Unlike in the developed world, divorce is a much less important explanation. Instead, South Africans are not forming the marital union in the first place. Cohabitation is increasing but faces cultural resistance. Most female Black African household heads had never been married by 2011; White female heads are still most likely to be married but decreasingly so.

A second important institutional trend was change in political regime. Generational responses to the end of apartheid differed by gender and population group. Black women who were prime-aged when apartheid ended are more likely to head their own households than both their older and younger counterparts. By contrast, the Black African men who are most likely to be forming households in the post-apartheid period are those who were relatively young when apartheid ended: those aged 10-25 at the time of the first democratic election.

Population group differences were more important for men, with Black African men being much more likely to form households than White men over time. These two groups follow divergent patterns in marital prospects and generational propensity to form households. About 90 percent of White male household heads are married compared to about 60 percent of Black African ones in 2011. Young White men are much less likely to form their own households compared to their older counterparts; whereas the opposite is true for young Black African men. This can be explained by more White elderly people living alone compared to the lengthening educational careers of young White men keeping them at home for longer, combined with it being relatively more difficult for young people in general to buy or rent a house. Young Black African men though are much less likely to be enrolled in post-secondary education than White men and more likely to be working or (broadly) searching for work.

Search for work also comes out as an important reason people move out, especially for men. Men living in zero-income-earning or rural households were more likely to move than those who didn't. Higher proportions of young Black African men forming households could reflect their movement from their rural childhood homes to the city in search of work. By contrast, older Black African men are more likely to be embedded in extended kin households, making them comparatively less likely to move.

Household income had negligible effects on household formation in the pooled analysis and was insignificant in explaining change in male or female household formation over time. This is because of the ambiguous effect of total household income on household formation in a developing country setting with a stagnant labour market. In South Africa, researchers have found that the unemployed remain attached to resources in the households they are in and more household income, for example, from pension onset, does not necessarily imply smaller households (Keller 2004, Edmonds et al. 2005, Klasen & Woolard 2009). In one of our alternative specifications, we found that higher individual earnings encouraged moving out, but that higher earnings from other household members, discouraged it. More income makes moving out more financially affordable, but in cases where you have few resources of your own, it makes more financial sense to stay. Ermisch & Di Salvo (1996) find similar opposite effects for personal and parental income in the case of young people moving out of home in Britain.

We pick up some effects that are symptomatic of South Africa's highly patriarchal gender relations. Access to any pension income in the household will delay female movement, but only female pension income will delay male movement in the pooled analysis. Over time, though, the only significant effect pension income had on the chance of forming a household was to delay male movement. Falling fertility has also impacted household formation behaviour. Women perform the overwhelming majority of childcare in South Africa making it unsurprising that the decline in the number of children per household was behind the increased chance that women, but not men, would move out.

Our findings have implications for several research agendas. These would most directly be the literature on household formation, household composition, and gender. On a deeper level, structural trends in household formation make us confront our ideas about how welfare is measured, how equiva-

lence scales are constructed, and, how household and individual welfare intermingle. More and smaller households erode economies of scale and undermine the ability of the state to adequately provide infrastructure and services to their populations. In a local rural area of South Africa, people are forming households quickly even though this has been empirically shown to diminish their access to electricity (Harris et al. 2017). However, part of why the same population was forming households so quickly was because of the building of and access to free government housing (Wittenberg & Collinson 2017). How do people trade-off these factors against each other? In answer to this question, Franklin (2016) presents some evidence that access to free government housing in Cape Town increased female labour supply by reducing the need for household work.

Women, in particular, present a puzzle. Female ties to income are weak or weakening: women are less involved in the labour market than men and when they do participate, they face higher rates of unemployment and a ‘second shift’ at home. At the same time, their ties to traditional male income are diminishing as they are less and less likely to get married. And yet, the female headship rate has increased substantially over the period, over and above demographic processes. What is driving women to form households in this setting? One part of the answer may be that women are pushed into headship by lower chance of marriage and pulled by increased access to labour market income; although, as we have argued, we are cautious about the strength of the latter effect. Another part of the answer may be the supply shock in freedom to form a house in any part of the country that came with the end of racial segregation in 1994. The household formation of generations of women who were prime-aged when apartheid ended may have adjusted to new less-restricted circumstances resulting in them having higher propensities to form households than older or younger generations. Formation trends for young women born close to or after the end of apartheid then have more in common with other young people in the rest of the world.

However, this is unlikely to be the full explanation. Limitations of this study include the inability to properly assess changes in labour migration and free government housing, as well as, a good operationalisation of fertility effects. We only indirectly view fertility effects through the average number of children per household in nationally representative samples. A more important point, though, is that we are simply constrained by what cross-sectional survey data can tell us about welfare and household formation. With large household survey data we cannot observe details about many of the livelihood strategies and linkages households form to help them survive on a day-to-day basis.

There are a few important avenues for future research highlighted by this discussion. Women may be increasingly pushed into headship by poorer marriage prospects, but how are they surviving in this context? How can other types of qualitative and quantitative data contribute to our answer to this question. This paper took a general approach with special focus on some institutional factors; but there is scope for paying more attention to particular drivers. For example, Wittenberg & Collinson (2017) show that free government housing may have spurred household formation in a local area, but can this be applied to the country at large? How does labour migration interact with the increasing household stock? Marriage and household formation are very closely intertwined and a more detailed inspection of the South African case, perhaps with better data or more appropriate econometric techniques would be highly informative. Ermisch & Di Salvo (1996) show that union formation and dissolution are key to household formation patterns in Britain. A topic for more precise investigation then is of the patterns that emerge when people are not forming the unions in the first place.

## 11 Appendix

### References

- Aghajanian, A. & Thompson, V. (2013), ‘Female headed households in iran (1976–2006)’, *Marriage & Family Review* **49**(2), 115–134.

**Table 7:** Regression Output for Probability of Household Headship in South Africa, by Gender: alternative specification using household expenditure

| Depvar: Headship<br>Sample           | OLS                |                           | FIXED EFFECTS      |                           | PSP: FIRST DIFF    |                           |
|--------------------------------------|--------------------|---------------------------|--------------------|---------------------------|--------------------|---------------------------|
|                                      | Men                | Women                     | Men                | Women                     | Men                | Women                     |
| <u>Institutional</u>                 |                    |                           |                    |                           |                    |                           |
| MS: Married                          | 0.39***<br>(0.00)  | <b>-0.29***</b><br>(0.00) | 0.38***<br>(0.00)  | <b>-0.29***</b><br>(0.00) | 0.35***<br>(0.10)  | <b>-0.28***</b><br>(0.08) |
| MS: Widowed                          | 0.27***<br>(0.00)  | <b>0.29***</b><br>(0.00)  | 0.27***<br>(0.00)  | <b>0.30***</b><br>(0.00)  | -0.04<br>(0.20)    | <b>0.08</b><br>(0.12)     |
| MS: Divorced/Separated               | 0.10***<br>(0.00)  | <b>0.23***</b><br>(0.00)  | 0.09***<br>(0.00)  | <b>0.22***</b><br>(0.00)  | -0.07<br>(0.27)    | <b>0.32</b><br>(0.19)     |
| <u>Economic</u>                      |                    |                           |                    |                           |                    |                           |
| LM: Unemployed                       | -0.15***<br>(0.00) | <b>-0.11***</b><br>(0.00) | -0.15***<br>(0.00) | <b>-0.11***</b><br>(0.00) | -0.34***<br>(0.07) | <b>-0.20**</b><br>(0.07)  |
| LM: NEA                              | -0.12***<br>(0.00) | <b>-0.09***</b><br>(0.00) | -0.12***<br>(0.00) | <b>-0.08***</b><br>(0.00) | -0.20**<br>(0.07)  | <b>-0.16**</b><br>(0.06)  |
| Log Per Capita HH Expenditure        | 0.01***<br>(0.00)  | <b>-0.02***</b><br>(0.00) | 0.01***<br>(0.00)  | <b>-0.02***</b><br>(0.00) | 0.01<br>(0.02)     | <b>-0.00</b><br>(0.02)    |
| HH Subsidy                           | -0.03***<br>(0.00) | <b>-0.01***</b><br>(0.00) | -0.03***<br>(0.00) | <b>-0.01***</b><br>(0.00) | 0.05<br>(0.10)     | <b>0.16</b><br>(0.10)     |
| <u>Preferences/Socio-Demographic</u> |                    |                           |                    |                           |                    |                           |
| Age                                  | 0.02***<br>(0.00)  | <b>0.03***</b><br>(0.00)  | 0.01***<br>(0.00)  | <b>0.03***</b><br>(0.00)  | 0.01<br>(0.01)     | <b>0.03</b><br>(0.01)     |
| Age2                                 | -0.00***<br>(0.00) | <b>-0.00***</b><br>(0.00) | -0.00***<br>(0.00) | <b>-0.00***</b><br>(0.00) | -0.00<br>(0.00)    | <b>-0.00</b><br>(0.00)    |
| PG: White                            | -0.13***<br>(0.00) | <b>-0.16***</b><br>(0.00) | -0.13***<br>(0.00) | <b>-0.15***</b><br>(0.00) | -0.52***<br>(0.12) | <b>-0.15</b><br>(0.13)    |
| PG: Asian/Indian                     | -0.11***<br>(0.00) | <b>-0.13***</b><br>(0.00) | -0.12***<br>(0.00) | <b>-0.13***</b><br>(0.00) | -0.62<br>(0.31)    | <b>-0.15</b><br>(0.30)    |
| PG: Coloured                         | -0.09***<br>(0.00) | <b>-0.08***</b><br>(0.00) | -0.09***<br>(0.00) | <b>-0.08***</b><br>(0.00) | -0.05<br>(0.24)    | <b>-0.18</b><br>(0.20)    |
| Urban                                | 0.01***<br>(0.00)  | <b>-0.02***</b><br>(0.00) | 0.01***<br>(0.00)  | <b>-0.02***</b><br>(0.00) | -0.29***<br>(0.06) | <b>-0.14</b><br>(0.07)    |
| No. Children < 15 yrs in HH          | 0.08***<br>(0.00)  | <b>0.07***</b><br>(0.00)  | 0.08***<br>(0.00)  | <b>0.08***</b><br>(0.00)  | 0.05<br>(0.04)     | <b>0.06*</b><br>(0.03)    |
| HH Size                              | -0.08***<br>(0.00) | <b>-0.08***</b><br>(0.00) | -0.08***<br>(0.00) | <b>-0.08***</b><br>(0.00) | -0.08***<br>(0.02) | <b>-0.08***</b><br>(0.01) |
| Cohort + Year Dummies                | NO                 | NO                        | YES                | YES                       |                    |                           |
| N                                    | 301964.00          | <b>361699.00</b>          | 287578.00          | <b>338491.00</b>          | 106.00             | <b>106.00</b>             |
| r2                                   | 0.61               | <b>0.47</b>               | 0.60               | <b>0.46</b>               | 0.73               | <b>0.48</b>               |

Notes: own calculations using the OHS-GHS series adjusted using cross-entropy weights for years 2002-2011. Standard Errors in Parenthesis; \* p<0.05, \*\* p<0.01, \*\*\* p<0.001. Sample limited to those aged 15 years and older. PSP = Pseudo-panel. MS = Marital status dummies with 'never married' as the base, also note 'married' includes 'cohabiting'. LM = Labour market status dummies with 'employed' as the base. PG = Population group dummies with 'Black African' as the base.

**Table 8:** Regression Output for Probability of Household Headship in South Africa, by Gender:  
alternative specification using own and other household earnings

| Depvar: Headship<br>Sample           | OLS                |                    | FIXED EFFECTS      |                    | PSP: FIRST DIFF    |                    |
|--------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|                                      | Men                | Women              | Men                | Women              | Men                | Women              |
| <u>Institutional</u>                 |                    |                    |                    |                    |                    |                    |
| MS: Married                          | 0.37***<br>(0.00)  | -0.21***<br>(0.00) | 0.37***<br>(0.00)  | -0.22***<br>(0.00) | 0.33***<br>(0.09)  | -0.25**<br>(0.07)  |
| MS: Widowed                          | 0.23***<br>(0.00)  | 0.31***<br>(0.00)  | 0.24***<br>(0.00)  | 0.31***<br>(0.00)  | -0.04<br>(0.21)    | 0.06<br>(0.11)     |
| MS: Divorced/Separated               | 0.08***<br>(0.00)  | 0.21***<br>(0.00)  | 0.08***<br>(0.00)  | 0.21***<br>(0.00)  | 0.18<br>(0.27)     | 0.16<br>(0.18)     |
| <u>Economic</u>                      |                    |                    |                    |                    |                    |                    |
| LM: Unemployed                       | 0.06***<br>(0.00)  | 0.08***<br>(0.00)  | 0.06***<br>(0.00)  | 0.07***<br>(0.00)  | -0.36**<br>(0.13)  | 0.06<br>(0.12)     |
| LM: NEA                              | 0.10***<br>(0.00)  | 0.11***<br>(0.00)  | 0.09***<br>(0.00)  | 0.10***<br>(0.00)  | -0.18<br>(0.12)    | 0.07<br>(0.11)     |
| Log Per Capita Own Earnings          | 0.03***<br>(0.00)  | 0.03***<br>(0.00)  | 0.03***<br>(0.00)  | 0.02***<br>(0.00)  | 0.03*<br>(0.01)    | 0.04**<br>(0.01)   |
| Log Per Capita Other HH Earnings     | -0.03***<br>(0.00) | -0.04***<br>(0.00) | -0.03***<br>(0.00) | -0.04***<br>(0.00) | -0.02<br>(0.01)    | -0.02<br>(0.01)    |
| Zero Earner HH                       | -0.05***<br>(0.00) | -0.09***<br>(0.00) | -0.05***<br>(0.00) | -0.09***<br>(0.00) | 0.12<br>(0.12)     | -0.06<br>(0.11)    |
| Female Pensioner in HH               | -0.15***<br>(0.00) | -0.09***<br>(0.00) | -0.16***<br>(0.00) | -0.11***<br>(0.00) | -0.20*<br>(0.09)   | -0.06<br>(0.04)    |
| Male Pensioner in HH                 | -0.01***<br>(0.00) | -0.15***<br>(0.00) | -0.03***<br>(0.00) | -0.15***<br>(0.00) | 0.05<br>(0.04)     | -0.00<br>(0.03)    |
| Other Grant Recipient in HH          | -0.05***<br>(0.00) | -0.02***<br>(0.00) | -0.06***<br>(0.00) | -0.02***<br>(0.00) | -0.02<br>(0.05)    | -0.07<br>(0.04)    |
| Flush Toilet On Site                 | -0.00<br>(0.00)    | -0.01***<br>(0.00) | -0.00**<br>(0.00)  | -0.01***<br>(0.00) | 0.09<br>(0.07)     | 0.05<br>(0.05)     |
| Piped Water On Site                  | -0.00<br>(0.00)    | -0.01***<br>(0.00) | 0.00<br>(0.00)     | -0.01***<br>(0.00) | 0.02<br>(0.14)     | -0.11<br>(0.12)    |
| Electricity for Lighting             | -0.02***<br>(0.00) | -0.01***<br>(0.00) | -0.02***<br>(0.00) | -0.01***<br>(0.00) | -0.00<br>(0.15)    | 0.11<br>(0.12)     |
| Electricity/Gas to Cook              | 0.02***<br>(0.00)  | 0.01***<br>(0.00)  | 0.02***<br>(0.00)  | 0.02***<br>(0.00)  | 0.01<br>(0.12)     | -0.12<br>(0.09)    |
| No. of Rooms                         | -0.01***<br>(0.00) | -0.01***<br>(0.00) | -0.01***<br>(0.00) | -0.01***<br>(0.00) | 0.00<br>(0.01)     | 0.00<br>(0.01)     |
| Cellphone in HH                      | 0.02***<br>(0.00)  | 0.02***<br>(0.00)  | 0.01***<br>(0.00)  | 0.02***<br>(0.00)  | 0.01<br>(0.06)     | -0.01<br>(0.05)    |
| <u>Preferences/Socio-Demographic</u> |                    |                    |                    |                    |                    |                    |
| Age                                  | 0.02***<br>(0.00)  | 0.03***<br>(0.00)  | 0.01***<br>(0.00)  | 0.02***<br>(0.00)  | 0.00<br>(0.01)     | 0.02<br>(0.01)     |
| Age2                                 | -0.00***<br>(0.00) | -0.00***<br>(0.00) | -0.00***<br>(0.00) | -0.00***<br>(0.00) | 0.00<br>(0.00)     | -0.00<br>(0.00)    |
| PG: White                            | -0.05***<br>(0.00) | -0.12***<br>(0.00) | -0.04***<br>(0.00) | -0.10***<br>(0.00) | -0.43**<br>(0.13)  | -0.03<br>(0.14)    |
| PG: Asian/Indian                     | -0.05***<br>(0.00) | -0.08***<br>(0.00) | -0.05***<br>(0.00) | -0.07***<br>(0.00) | -0.43<br>(0.32)    | -0.08<br>(0.28)    |
| PG: Coloured                         | -0.04***<br>(0.00) | -0.05***<br>(0.00) | -0.04***<br>(0.00) | -0.05***<br>(0.00) | -0.20<br>(0.25)    | -0.04<br>(0.19)    |
| Urban                                | 0.00<br>(0.00)     | -0.00<br>(0.00)    | 0.00<br>(0.00)     | -0.00<br>(0.00)    | -0.33***<br>(0.09) | -0.06<br>(0.10)    |
| No. Children < 15 yrs in HH          | 0.05***<br>(0.00)  | 0.05***<br>(0.00)  | 0.05***<br>(0.00)  | 0.05***<br>(0.00)  | 0.01<br>(0.04)     | 0.07*<br>(0.03)    |
| HH Size                              | -0.05***<br>(0.00) | -0.05***<br>(0.00) | -0.05***<br>(0.00) | -0.05***<br>(0.00) | -0.05*<br>(0.02)   | -0.08***<br>(0.02) |
| Cohort + Year Dummies                | NO                 | NO                 | YES                | YES                |                    |                    |
| N                                    | 373652.00          | 454033.00          | 352296.00          | 419548.00          | 116.00             | 116.00             |
| r2                                   | 0.64               | 0.51               | 0.64               | 0.50               | 0.76               | 0.59               |

Notes: own calculations using the OHS-GHS series adjusted using cross-entropy weights for years 1995, 1997, 1998, 2002-2011. Standard Errors in Parenthesis; \* p<0.05, \*\* p<0.01, \*\*\* p<0.001. Sample limited to those aged 15 years and older. PSP = Pseudo-panel. MS = Marital status dummies with 'never married' as the base, also note 'married' includes 'cohabiting'. LM = Labour market status dummies with 'employed' as the base. PG = Population group dummies with 'Black African' as the base.

**Figure 9:** Propensity to Form a Household based on Age at South Africa’s First Democratic Election: compared to those aged 54 at the first election or born in 1940



Notes: own calculations using the OHS-GHS panel adjusted using cross-entropy weights. Cohort coefficients are those from the regression in equation (5) with the preferred specification of **ECON** described in the text, reported in Table 6. Coefficients interpreted relative to those born in 1940, or aged 54 at the time of the first democratic election.

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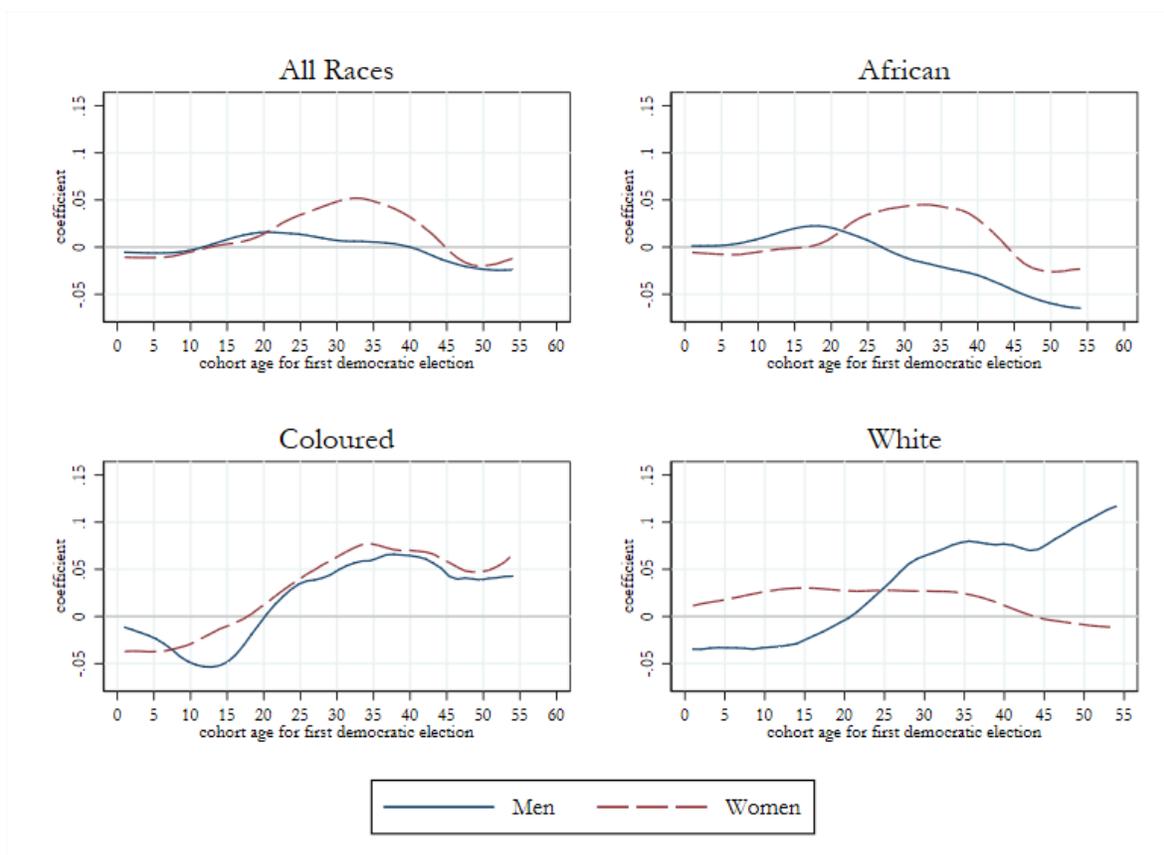
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**Figure 10:** Propensity to Form a Household based on Age at South Africa’s First Democratic Election: alternative specification using expenditure



Notes: own calculations using the OHS-GHS panel adjusted using cross-entropy weights. Cohort coefficients are those from the regression in equation (5) with the alternative specification of **ECON** described in the text using expenditure instead of earnings, reported in Table 7. To report the coefficients neutral of a potentially-influential base cohort, we run the regression several times using six different base cohorts (birth year = 1950, 1960, 1970, 1980, and 1990) and then report here the average of these.

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