Stepfamily arrangement and child well-being in South Africa: A longitudinal perspective

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Introduction

The socio-economic setup of the apartheid system in South Africa had dominant and long-term impacts on the current family structures (Anderson, 2003). Under the apartheid regime, there was immense forced relocation of Africans to what is referred to as homelands[1] with conditions that offered significant limitations on their ability to change residential places (Jones, 1993). Thus, African parents were sometimes enforced by circumstances to look for employment and to stay away from their families for an extended period (Anderson, 2003). Hence many diverse family arrangements can be identified in South Africa, where many children are anticipated to spend a significant part of their childhood deprived of at least one of their natural parents (Madhavan, Schatz, Clark, & Collinson, 2012; Sibanda, 2011). Additionally, high rates of female and male employment-related migration (Lu & Treiman, 2011), combined with high, but decreasing, proportions of non-marital childbearing (Hosegood, McGrath, & Moultrie, 2009), resulted in many children living in the absence of one or both biological parents.

Various studies have assessed different aspects of family dynamics in South Africa and its consequences on children schooling and health (Amoateng, Richter, Makiwane, & Rama, 2004; Anderson & Lam, 2003; Branson, Hofmeyr, & Lam, 2014; Cherian, 1989; Grant & Hallman, 2008; Hunter & May, 2003). Cherian (1989), Anderson and Lam (2003) and, Mboya and Nesengani (1999), studying black Xhosa-speaking children from the Transkei, children living in Cape Town and, secondary school children in the Northern Province of South Africa respectively, found that children from an intact family, where both biological parents were alive and present, have higher test scores relative to the scores for children from other family structures[2]. Fleisch, Shindler, and Perry (2012) further allude that children living in households where the head is a biological parent or grandparent are more likely to attend school than children living in other different family arrangements. Similar results are observed in the case of child health (Akinyemi,

[1] The homelands, established by the apartheid government, were regions to which the mainstream of the African population was moved to prevent them from living in the urban areas of South Africa, mainly as a means for population check.

[2] In support of the view, Anderson, Case and Lam (2001) further found that, in South Africa, children living with both biological parents have better school outcomes relative to those living in other family arrangements.

Odimegwu, & Banjo, 2017; Clark & Hamplová, 2013; Gibson & Mace, 2007; Ntoimo & Odimegwu, 2014; Smith-Greenaway & Clark, 2017; Smith-Greenaway & Trinitapoli, 2014). On the contrary, Fuller (1999)) conclude that African female children from households with absent biological fathers are less likely to drop out of school than female children from households with the father alive and present – a phenomenon that is usually credited to migrant-sending money and other remittances to their families, which in turn might be used as investments in children's schooling.

Even though family structural arrangement is still in a progressive change, Chae (2016) and Clark and Brauner-Otto (2015) have identified families in sub-Saharan Africa (SSA) to be characterised by a high degree of remarriage soon after marital disruption or death of a partner and that over eighty-five per cent of women in SSA would have at least one child under fifteen years of age at the time of union dissolution respectively. Thus, considering these features of families in SSA, many children are expected to find themselves in a new family (stepfamily) arrangement[3]. However, Adjiwanou (2017) discovered that the number of children living in a stepfamily arrangement is lower than expected. Grant and Yeatman (2014) acknowledged the reason for such a small proportion to be various alternatives to child care that have emerged in SSA, such as fosterage. Thus, children are most likely to be fostered out when their biological parents remarry. Second, Clark and Brauner-Otto (2015) have noted that unions in SSA are becoming more stable, thereby allowing children to grow old enough under the care of their parents before the marital disruption. Third, a recent decrease in the trends of premarital childbearing, especially among adolescents (Clark, Koski and Smith-Greenaway 2017; Hertrich 2017) – a source of children who could live in a stepfamily arrangement, also account for the low proportion of stepchildren in the region. Last, HIV/AIDS may delay many women from remarrying, thus reducing the proportion of children living in stepfamilies (Adjiwanou 2017; Reniers 2003).

Recently, Lopus (2017) evaluates the effects of family arrangement on schooling outcomes for all children aged 6 to 15 years from the Ibo Island, located in northern Mozambique, using pooled data from two censuses[4] (2009 and 2012) to estimate the differences in children's schooling enrolment as a function of father's or male presence[5] and their interaction with maternal presence. Lopus (2017) found out that children's school enrolment was higher among children who lived with their biological fathers, whereas children who lived with stepfathers, other types of adult male nonrelatives, or no adult males fared

[3] A stepfamily can be defined as a union resulting from two adults where one partner or both has at least one child or more from a former relationship. This has to be differentiated from a remarriage which can be seen merely as a second marriage or a higher order marriage of a previously married individual(s).

[4] In 2009 and 2012, the Ibo Foundation, a non-governmental organization, conducted a two-complete census of Ibo Island, located in northern Mozambique.

[5] The different categories include father present, adult male relatives, stepfather, adult male nonrelatives, and no adult males.

substantially worse. Similarly, using data from 33 countries in SSA and adopting an innovative approach to measure stepfamily arrangement with the DHS data, Adjiwanou (2017) found that children who live in a stepfather family arrangement are less likely to attend school compared to children who live with both parents.

The present study, built on these two previous studies (while reducing their limitation) attempts to:

1. Evaluate how family arrangement structures within which children live change over time.
2. Assess the effects of stepfamily living arrangement on child school performance (in comparison to children living in a single-parent family arrangement or with both biological parents).
3. Assess the effects of stepfamily living arrangement on child health (in comparison to children living in a single-parent family arrangement or with both biological parents).
4. Assess how the effects of stepfamily arrangement on child health and (or) school performance vary with child's gender and place of residence.

Data

The data used for this article are drawn from the National Income Dynamics Study (NIDS) – the first nationally representative panel study conducted in South Africa. The Southern Africa Labour and Development Research Unit (SALDRU), based at the School of Economics at the University of Cape Town (UCT), was tasked with conducting the surveys. This study was undertaken in order for the South African government to better understand the changing social and economic dynamics of South Africa (Leibbrandt, Woolard, & de Villiers, 2009). The study was introduced in 2008 with a nationally representative sample of over 28000 individuals in 7305 households. After the first wave, data were repeatedly collected from the same household members after every two years. The study currently comprises five waves of data collection– however, at the time of study, only the first four waves were currently available to researchers. A unique characteristic of the NIDS panel data is the platform it provides to adequately capture the changes in individual, parental, household and environmental level across waves (Leibbrandt et al., 2009). In the current study, only children who were successfully interviewed in at least two consecutive waves were considered.

Variables

The current study makes use three measures of child well-being as outcome variables namely overweight (BMIZ) (derived from body mass index z-scores), stunted growth (HAZ) (derived from height-for-age z-scores) and the school performance(EDU); whether the child passed or failed the grade in the academic year of the interview. The main independent variable for the current study is the family structure in which every child live; stepfamily, both biological parents, single-parent, fostered out, non-residential

(step/biological) parent – these are children living in the absence of one parent (either biological or step), and others. The category others represent children who had at least one biological parent found to live in more than one households.

Methods

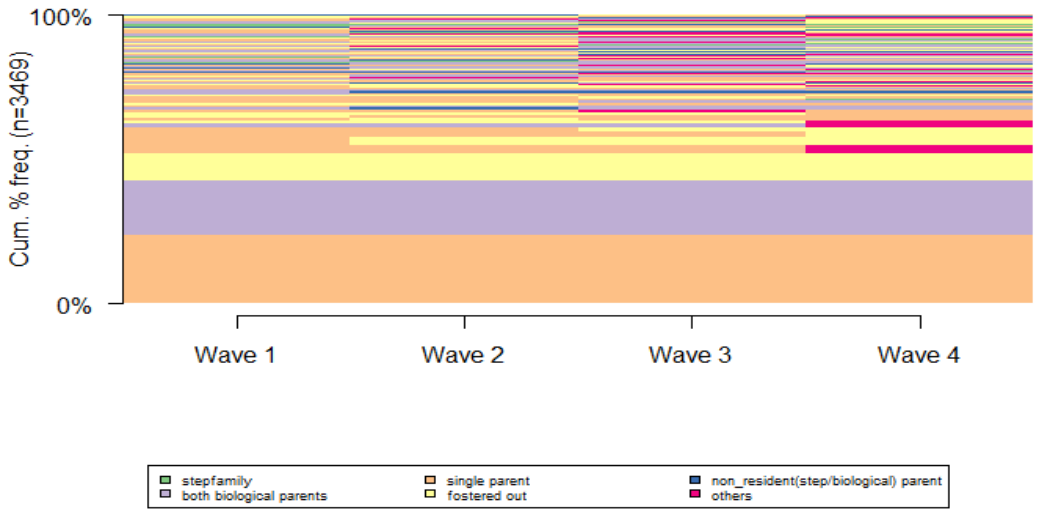
This study uses two methods namely, the sequential analysis to assess how family structure in which children live change over time using sequential frequency and index plots, and the conditional logit fixed-effects models to assess the effect of family arrangement on the dependent variables. The conditional logit fixed effects form of the model is given by:

$$\boldsymbol{logit}(\boldsymbol{y_{it}}) = \boldsymbol{X_{it}\beta} + \boldsymbol{\alpha_i} + \boldsymbol{u_{it}}$$

for each $\boldsymbol{i} = 1, 2,\ldots, N$ and $\boldsymbol{t} = 1, 2,\ldots, N$, where $\boldsymbol{y_{it}}$ is the dependent variable observed for child $\boldsymbol{i}$ at wave $\boldsymbol{t}$, $\boldsymbol{X_{it}}$ is the time-variant regressors, $\boldsymbol{\beta}$ is a matrix of parameters, $\boldsymbol{\alpha_i}$ are latent time-invariant variables and $\boldsymbol{u_{it}}$ is the error term with $\boldsymbol{E(u_{it}) = 0}$.

Results

Sequence analysis: How family arrangement structure within which children live change over time?



A high proportion of children who happen to be in the same family arrangement across all four waves has been observed. Overall, the pattern of children who were in single-parent family arrangement throughout the study has the highest frequency than other arrangements, followed by a sequence consisting of children living with both biological parents across all four waves. However, there is much noise (complexity) in the way the patterns are changing which shows that the variable family arrangement is time-invariant, and

changes in different directions and patterns – this can also explain the instability of family arrangements in South Africa. The family instability hypothesis depicts that children who are involved in numerous transitions in the family arrangement may suffer inferior well-being than children raised up in continuous and stable both biological parent family structure and possibly even stable, single-parent family structure (Fomby and Cherlin 2007). Thus, a manifold of transitions and adverse child developmental outcomes could be related via common causal factors attributed at parental, child and household level.

Table 1: Effect of stepfamily arrangement on children schooling and well-being

	EDU				**HAZ**				**HAZ (Africans only)**		**BMIZ**			
	Model 1		*Model 2*		*Model 1*		*Model 2*		*Model 3*		*Model 1*		*Model 2*	
	OR	**P>z**	**OR**	**P>z**	**OR**	**P>z**	**OR**	**P>z**	**OR**	**P>z**	**OR**	**P>z**	**OR**	**P>z**
Family arrangement														
Single-parent	0.166	0.05	-	-	-	-	3.762	0.073	1.16	0.813	-	-	3.700	0.278
Both biological parents	-	-	6.032	0.05	0.266	0.073	-	-	0.099	0.021	0.2703	0.278	-	-
Stepfamily	0.163	0.047	0.981	0.964	0.682	0.519	2.566	0.258	-	-	0.6139	0.497	2.271	0.532
Fostered out	0.103	0.116	0.623	0.492	1.852	0.319	6.969	0.097	4.157	0.124	0.7754	0.782	2.869	0.572
Non-resident(step/biological) parent	0.22	0.11	1.33	0.521	2.292	0.066	8.622	0.009	2.226	0.271	0.4516	0.098	1.671	0.676
Others	0.057	0.021	0.341	0.049	2.546	0.013	9.578	0.009	3.779	0.071	0.6528	0.469	2.415	0.536
N				1474				1639		1476				1152
LR chi2(22)				36.04				131.29		117.65				171.93
Prob > chi2				0.041				0.000		0.000				0.000
Log-likelihood				-510.6				-508.7		-458.6				-317.2

NOTE: Both models control for other covariates variables; household income, child's age, child's age squared, household size, household sharing of toilet facility, mothers' and fathers' employment status, mothers' and fathers' age.

After controlling for child-level, parental-level, and household-level characteristics, children living in a stepfamily arrangement are less likely to perform well in school as compared to children living with both biological parents. As observed by several researchers, transitions to stepfamily living arrangements have a link to inferior schooling outcomes (Furstenberg Jr, Brooks-Gunn, & Morgan, 1987; Thomson, Hanson, & McLanahan, 1994).

All full models (models with all the children five years and below) on nutrition outcomes show no statistically significant difference between children living in stepfamily arrangement in comparison to those living in either both biological parent family arrangement or single-parent family arrangement. However, this was not the case when only African children were considered; African children living in a

stepfamily arrangement are ten times more likely to be stunted as compared to African children living with both biological parents. This discovery indicates how population groups in South Africa strongly influence how family arrangements are structured and their overall consequences on the well-being of children.

Table 2: Average marginal effects of family arrangement on school performance by gender and place of resident separately

Model 3	**Marginal Probability**	**P>z**	**Model 4**	**Marginal Probability**	**P>z**
*Family arrangement*Gender*			*Family arrangement*Place of resident*		
Stepfamily*Female	0.858	0.000	Stepfamily*Non-urban	0.808	0.000
Stepfamily*Male	0.862	0.000	Stepfamily*Urban	0.817	0.000
Both biological parents*Female	0.962	0.000	Both biological parents*Non-urban	0.957	0.000
Both biological parents*Male	0.975	0.000	Both biological parents*Urban	0.957	0.000
Single-parent*Female	0.876	0.000	Single-parent*Non-urban	0.747	0.000
Single-parent*Male	0.852	0.000	Single-parent*Urban	0.863	0.000
Fostered out*Female	0.811	0.000	Fostered out*Non-urban	0.671	0.013
Fostered out*Male	0.791	0.000	Fostered out*Urban	0.806	0.000
Non-resident(step/biological) parent*Female	0.898	0.000	Non-resident(step/biological) parent*Non-urban	0.798	0.000
Non-resident(step/biological) parent*Male	0.875	0.000	Non-resident(step/biological) parent*Urban	0.899	0.000
Others*Female	0.745	0.001	Others*Non-urban	0.558	0.050
Others*Male	0.679	0.007	Others*Urban	0.646	0.024

NOTE: 1) (Both biological parents*Female - Stepfamily*Female)/ (Both biological parents*Male - Stepfamily*Male) =0.919

2) (Both biological parents*Non-Urban - Stepfamily*Non-urban)/ (Both biological parents*Urban - Stepfamily*Urban) =1.063

Table 3: The Ratios of marginal probabilities of the interaction term between family arrangement and gender for the school performance model

Row margin/ Column margin	Stepfamily* Female	Stepfamily* Male	Both biological parents* Female	Both biological parents* Male	Single parent* Female	Single parent* Male
Stepfamily*Female	1.000	0.995	0.892	0.880	0.980	1.007
Stepfamily*Male	1.005	1.000	0.896	0.884	0.984	1.011
Both biological parents*Female	1.121	1.116	1.000	0.986	1.099	1.129
Both biological parents*Male	1.137	1.132	1.014	1.000	1.114	1.144
Single parent*Female	1.021	1.016	0.910	0.898	1.000	1.027
Single parent*Male	0.994	0.989	0.886	0.874	0.973	1.000

Table 4: The Ratios of marginal probabilities of the interaction term between Family arrangement and Place of resident for the school performance model

Row margin/ Column margin	Stepfamily* Rural	Stepfamily* Urban	Both biological parents* Rural	Both biological parents* Urban	Single parent* Rural	Single parent* Urban
Stepfamily*Rural	1.000	0.989	0.845	0.845	1.082	0.937
Stepfamily*Urban	1.011	1.000	0.854	0.854	1.094	0.947
Both biological parents*Rural	1.184	1.172	1.000	1.000	1.282	1.109
Both biological parents*Urban	1.184	1.171	1.000	1.000	1.281	1.109
Single parent*Rural	0.924	0.914	0.780	0.781	1.000	0.865
Single parent*Urban	1.068	1.056	0.902	0.902	1.156	1.000

Using the ratios presented in **Table 3**, male children who live in a stepfamily arrangement are 12 per cent less likely to perform well at school compared to male children of the same age group living with both biological parents. Although the direction of the result is the same for female children, the disadvantage is less for female children (shown by a ratio lower than one on the first NOTE presented below **Table 2**). Additionally, as shown in the **Table 3** (produced from Model 4), urban-based children who lived in a stepfamily arrangement are 15 per cent less likely to perform well at school compared to urban children of the same age group living with both parents. Although the direction of the result is the same for non-urban children, the drawback is remarkably less for urban children (shown by a ratio greater than one on the second NOTE presented below **Table 2**).

Conclusion and Limitations

Despite high levels of marital dissolutions and remarriage in the region, the current study shows that stepfamily living arrangement is not very common in South Africa. These results are in accordance with what is observed by Adjiwanou (2017), that stepfamily arrangement is an infrequent event in SSA and needs qualitative study to understand how children navigate between family arrangement at the onset of divorce and remarriage in SSA.

The current study has some limitations worth mentioning. First as noted by Chae (2016), even though the fixed effects model controls for time-invariant unobserved heterogeneity, the model does not control for time-varying unobserved heterogeneity. Failing to include such variables in the model could result in producing biased estimates of the effects of stepfamily living arrangement. Second, much of the information used in the analysis relied profoundly on household representative reports of children, parental and household characteristics. Imprecise reports can lead to children's characteristics wrongly classified, possibly affecting outcomes of the study. Last, the results of the current study might have been affected by attrition.

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