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ORIGINAL ARTICLE

Household transitions in rural South Africa, 1996–2003[1]

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Abstract

Aims: To investigate changes in household structure in rural South Africa over the period 1996–2003, a period marked by politico-structural change and an escalating HIV/AIDS epidemic. In particular, the authors examine whether there is dissolution of extended family living arrangements. *Methods*: Data from the Agincourt demographic surveillance system, in rural north-eastern South Africa, and the rural sub-samples of selected nationally representative data sets were used to compare changes in the cross-sectional distribution of household types. Surveillance system data were further analysed to estimate the transition probabilities between household types. The latent pressures for change within the Agincourt area were analysed by projecting the household transition probabilities forward and comparing the projected steady-state distributions to the current distributions. *Results*: The national surveys show dramatic changes in the social structure in rural areas, particularly an increase in the importance of single person households. These trends are not confirmed in the surveillance system data. The national ''changes'' can possibly be ascribed to changes in sampling frames or household definitions. The transition probabilities within the Agincourt area show considerable changes between household types, despite a slower change in the aggregate distributions. The most important projected long-run changes are an increase in the proportion of three-generation linear households. ''Simpler'' household types such as single person households and nuclear households will become relatively less common. *Conclusions*: The structure of households is evolving under the pressure of social change and increased mortality due to HIV/AIDS. There is no evidence, however, that the social fabric is unravelling or that individuals are becoming increasingly isolated residentially.

Key Words: *Agincourt demographic surveillance system, household structure, impact of HIV/AIDS, nuclear households, single-person households, South Africa*

Background

Understanding whether and how South African households are reshaping themselves is a matter of considerable debate. Ziehl [1] has suggested that black South African households may be becoming more ''nuclear'', at least in an urban setting. By contrast, Russell [2,3] has contested this notion. She claims that many urban dwellers are still embedded in a broader set of relationships and that they will return to their base in the extended family eventually. In other words one needs to understand not only the current position of individuals, but their trajectory, i.e. their ''life course'' [4].

These matters are likely to be of considerable public policy concern. Many studies have shown that South African households fulfil important safety-net

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functions. In particular the receipt of pensions has important spill-over effects for education, food security, and health expenditures [5–7]. Direct public health expenditures, by contrast, seem to be less well targeted towards the poorest South Africans [8,9].

The spreading HIV/AIDS epidemic adds additional urgency to this debate. If the extended family networks are being eroded, this raises serious questions about how the orphans and elderly will be cared for, or what burdens they will be required to shoulder. The spectre of ''child-headed households'' has been raised repeatedly in this context [10].

The changes wrought by HIV/AIDS are happening at a time when there have been other large social, economic and political changes. The demise of apartheid has opened up new opportunities for South Africa's black majority. At the same time South Africa's economy has been undergoing major restructuring, which has led to a rise in male unemployment and probably an increase in the poverty rate [11]. It stands to reason that these changes would also have left an imprint on the organization of households and families.

A key issue in the debate around South African households is the reliability of national household surveys for addressing these questions, in the absence of more appropriate longitudinal data [1–3]. In this paper we intend to contrast analyses based on rural sub-samples of national cross-sectional data sets with the more longitudinal perspective offered by the database of the Agincourt health and demographic surveillance site. This site is based in a typical, rural part of South Africa, near the Mozambican border.

Our research questions are, first, whether there is a discernible change towards more ''nuclear'' households or towards a dissolution of ''extended family'' living arrangements when examined in cross-section. Second, we would like to explore whether there is an increase in child-headed households or other non-standard living arrangements such as non-kin based households. Finally, we would like to explore how robust the cross-sectional pictures are when these relationships are examined longitudinally.

Material and methods

The study relies on secondary analyses of two types of data: nationally representative household surveys collected by the official statistical agency, Statistics South Africa; and health and demographic surveillance data from the Agincourt Demographic Surveillance System (DSS). The latter is an information system monitoring the population dynamics of a geographically defined population of around 70,000 persons, in a north-eastern former ''homeland'' part of South Africa. The method involves longitudinal registration of all births, deaths, and in- and out-migrations at a household level, together with a small range of key social and demographic variables. The core DSS is rigorously updated once a year, with information captured on all vital events occurring between update rounds. This enables a reconstruction of households at any point in time, and the observation of household transitions over time.

The national data sets used include the 1995 and 1999 October Household surveys and the 2003 General Household survey. These surveys are all two-stage stratified random samples of households. In the first stage around 3,000 clusters are drawn from the set of census enumerator areas, while in the second stage around 30,000 households are drawn within these clusters. Information on all household members is recorded.

There is, however, an important difference in the way in which household membership is treated in the national household surveys and in the Agincourt DSS. The national surveys impose the criterion that an individual would need to spend four nights per week on average for the past four weeks in the household in order to qualify as member of that household. The Agincourt DSS, by contrast, includes ''absent household members''. This allows migrant workers (an important part of the rural economy) to remain on the household rosters. In order to make our analyses on the DSS as comparable to the national data sets as possible, we exclude absent household members. Similarly we report mainly the results for the rural sub-sample of the national surveys.

The household typology used in this study derives from the ''relationship codes'' used in the Agincourt DSS or in the national household surveys. All of these are based on the relationship to a ''Head'' of the household. The codes used in the Agincourt DSS are considerably more detailed than those in the Statistics South Africa data sets. The whole chain of relationships is coded, so a grandchild might be coded as the son's son or the daughter's son. Similarly, a stepchild would be a wife's or husband's son or daughter. The national data sets, by contrast, have a shorter set of standardized codes. The July 2003 General Household Survey (GHS) for instance has nine categories plus a residual ''unspecified'' one [12]. Despite the fact that the Agincourt data set offers a much richer set of relationship data, it turns out that the nine GHS categories cover a high

proportion of the relationships observed in the Agincourt data.

On the basis of the relationship codes, the following typology of households was constructed:

1. Single-person households.
2. Couples – defined as a Head plus spouse.
3. Nuclear households – defined as a Head plus spouse plus children.
4. Single parent households – defined as a Head plus children.
5. Three-generation linear households – defined as a Head (with or without spouse) plus children plus parent (or parent-in-law); or a Head (with or without spouse) plus children plus grandchildren.
6. Three-generation skip households – defined as a Head (with or without spouse) plus grandchildren, but with no children present.
7. Multi-generation households – defined as households with great-grand parents and/or great-grand children.
8. Sibling only households – defined as a Head with his/her siblings.
9. Complex but related households – households that do not fit any of the previous categories, but in which everyone is related (directly or in-law) to the Head of the Household.
10. Complex plus unrelated – households in which at least one member of the household is not related to the Head.

This typology is somewhat more elaborate than similar ones used in other studies [13–16]. The category of ''child-headed household'' was not included, since a preliminary investigation showed that those ''child-headed households'' that appeared in the Agincourt database are typically data errors. A similar finding was made in the case of the DSS run by the Africa Centre for Health and Population Studies in the Hlabisa district of KwaZulu-Natal. Preliminary results reported by Hosegood suggest that child-headed households in the area are very rare and typically temporary.

In the first stage of the analysis, changes in the distribution of households across this typology were investigated. The key comparison is between the outer years, i.e. 2003 and 1995 (in the case of the national data sets) or 1996 (in the case of the Agincourt DSS). The reason for the difference in period is that the 1996 October Household Survey (OHS) was an atypical one and hence not suitable for comparison, while the relationship codes in the Agincourt DSS are subject to fewer errors from 1996 onwards.

In order to assess whether changes in distribution across the period are statistically significant, 95% confidence intervals for the differences were constructed. In the case of the national data sets, these were calculated taking into consideration the clustered and stratified nature of the data. Given that in the Agincourt data set the distributions are not statistically independent (since some households survive through the entire period), the confidence intervals were constructed by a bootstrap method, in which households were the unit of re-sampling. Two-hundred bootstrap replications were used.

In the second stage of the analysis, we utilized the longitudinal nature of the surveillance system data in order to estimate the transition probabilities between household types. For the purpose of analysis we categorized households into types at 30 November of each year. As long as ''households'' recorded in the same dwelling showed an overlap of at least one member, we treated them as being a continuation of the previous household. We also recorded which households appeared for the first time in the database (due to in-migration or new formation), and which ones disappeared (due to out-migration or dissolution). Since for most of the period we cannot track individuals who leave a particular dwelling, we cannot look at the transitions in living arrangements of individuals [15,16]. Instead, our focus is perforce on the household.

The latent pressures for change within the Agincourt area were analysed by projecting the transitions forward and comparing the projected ''steady state''[1] distributions to the current distributions (2003). If we are willing to assume that the transition probabilities are constant and independent from year to year (i.e. the process of household change is a Markov process with transition matrix as estimated from the data), we can simulate the process going forward. To this end we assume that new households are being formed at a constant rate as given by the historical data (shown in the first row of Table IV). Since there are some classification errors in the early period, we ran a sensitivity check. We included the ''unknown'' household types with the ''complex, related'' ones and recalculated the transition matrix and the projected long-run distribution. This is given in Table II as ''Long Run 2''.

Results

In Table I we compare the relationships as observed in some national data sets and in the Agincourt DSS. There are a number of striking trends in these data. First, the headship rates are rising in both the

Table I. Relationship types in the Agincourt DSS and selected national data sets,[a] South Africa.

	National data sets: rural sample			Agincourt DSS								
Relation to head of household	1995 OHS[b]	1999 OHS	2003 GHS[c]	1995	1996	1997	1998	1999	2000	2001	2002	2003
Head	0.177	0.204	0.237	0.102	0.102	0.104	0.105	0.116	0.117	0.126	0.128	0.126
Spouse	0.098	0.077	0.081	0.107	0.105	0.105	0.105	0.105	0.106	0.105	0.104	0.103
Child	0.485	0.409	0.370	0.496	0.496	0.494	0.495	0.481	0.472	0.465	0.461	0.456
Parent	0.009	0.004	0.003	0.016	0.016	0.015	0.015	0.015	0.014	0.013	0.013	0.013
Grandparent	0.003	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.001	0.001
Grandchild	0.159	0.209	0.211	0.153	0.157	0.160	0.164	0.167	0.172	0.173	0.174	0.178
Sibling	0.026	0.032	0.030	0.026	0.025	0.025	0.024	0.025	0.023	0.023	0.024	0.024
Relative	**0.038**	**0.057**	**0.061**	**0.082**	**0.081**	**0.083**	**0.084**	**0.089**	**0.093**	**0.092**	**0.092**	**0.095**
Daughter/son-in-law				0.023	0.023	0.023	0.022	0.023	0.022	0.021	0.021	0.021
Nephew/niece				0.036	0.035	0.036	0.036	0.038	0.039	0.038	0.038	0.038
Brother/sister-in-law				0.006	0.006	0.005	0.005	0.005	0.006	0.005	0.005	0.005
Stepchild				0.001	0.001	0.002	0.002	0.003	0.003	0.004	0.004	0.005
Other related				0.016	0.017	0.018	0.018	0.020	0.022	0.023	0.025	0.027
Unrelated	0.004	0.006	0.006	0.002	0.002	0.002	0.001	0.001	0.002	0.002	0.002	0.002
Unknown		0.000	0.000	0.015	0.015	0.012	0.007	0.001	0.000	0.000	0.001	0.001
n	62553	49865	45894	58913	59384	60372	60709	59759	57372	56627	56911	55392

Source: Own calculations from the Agincourt DSS database and Statistics South Africa public release data sets. The Statistics South Africa figures have been calculated using the Statistics South Africa individual weights. [a]The table contains column percentages plus, in the Agincourt data, a more detailed breakdown of the 'relative' category given in bold. [b]October Household Survey. [c]General Household Survey.

national data sets and in the Agincourt DSS data. A primary driver of this is the rapid rate of household formation – a rate well in excess of the population growth rate [17]. The rate of increase is much higher in the national data sets because these also show strong growth in the proportion of single-person households [18], a point to which we return below.

Second, there is a drop in the proportion of children, which may be due to declining fertility levels [19]. This is, however, counterbalanced by a growth in the proportion of grandchildren. This is one indication that households may be recomposing themselves either in the presence of pension payments [7] or in response to increasing parental mortality due to HIV/AIDS.

Additional evidence for household recomposition is provided by the increase in the proportion of ''relatives'' accommodated within households. Interestingly, the category which has shown the most rapid rate of increase in the Agincourt DSS is that of stepchildren. Finally, there is little evidence that there is any change in the kin basis of households.

We note that the changes in the national data sets are much more rapid and dramatic than is the case for Agincourt. This is evidenced in the changes in the household typology as shown in Table II. We note in particular the sharp increase in the proportion of single-person households in the rural sub-samples of the national data sets. This increase is also seen in other national data sets, such as the Labour Force Surveys [18]. It is puzzling that very little evidence for such a trend can be seen in the Agincourt DSS.

In Table III we focus on the changes in the typology over the study period, both nationally and in the Agincourt DSS. The most dramatic trend in the Agincourt data involves a three and a half percentage point drop in the prevalence of ''nuclear'' households, and a three percentage point rise in ''three-generation linear'' households. This change is statistically significant as shown by the confidence intervals. The pattern could be easily explained if there had been an upward trend in teenage fertility. If anything, however, fertility in the Agincourt area has shown a rapid drop during the same period, although teenage fertility remains high [19]. This suggests that the dynamics leading to the relative drop in nuclear households requires a more nuanced explanation.

We note that both the national data sets and the Agincourt DSS suggest an increase in the ''three-generation skip'' households. This may suggest the impact of HIV/AIDS, but if the temporary migrants are included in the analysis, there turns out to be no change over the period. This suggests that the increasing prevalence of these households is due more to changes in migratory behaviour (such as an increase in female labour migration) than in parental mortality.

Table II. Distribution of household types nationally and in the Agincourt DSS,[a] South Africa.

	National data sets			Agincourt DSS				
	1995 OHS[b]	1999 OHS[b]	2003 GHS	Actual			Projected	
Type of household	Rural[d]	Rural	Rural	1996	1999	2003	Long run 1[e]	Long run 2[f]
Single person	0.108	0.160	0.203	0.057	0.062	0.051	0.052	0.053
Couple	0.058	0.053	0.053	0.021	0.024	0.020	0.020	0.021
Nuclear	0.302	0.181	0.146	0.255	0.240	0.221	0.204	0.206
Single parent	0.146	0.140	0.130	0.103	0.110	0.115	0.109	0.110
Three-generation linear	0.174	0.178	0.177	0.189	0.204	0.216	0.230	0.231
Three-generation skip	0.032	0.054	0.062	0.024	0.031	0.039	0.041	0.041
Multi-generation	0.017	0.005	0.003	0.043	0.043	0.064	0.058	0.058
Siblings only	0.014	0.022	0.027	0.006	0.009	0.009	na	na
Complex, related	0.136	0.186	0.181	0.256	0.266	0.253	0.275	0.274
Complex plus unrelated	0.015	0.021	0.019	0.009	0.005	0.007	0.006	0.006
Don't know				0.037	0.006	0.005	0.005	
n	12,858	10,951	11,174	11,764	12,518	12,596		

[a]The table contains column proportions. Estimates from the national data sets are weighted according to the official weights supplied by Statistics South Africa. [b]October Household Survey. [c]General Household Survey. [d]Includes the 'Other-rural' and 'Tribal area' sub-samples. [e]'Long run 1' gives the distribution of household types if household transition probabilities (see Table IV) are continuously reapplied until a steady state is reached. [f]'Long run 2' is obtained in the same way as the 'long run 1' distribution, except the 'Don't know' category is amalgamated with the 'Complex, unknown' category (see methods section).

In Table IV we report the annual transition probabilities between household types in the Agincourt DSS. We have amalgamated the ''siblings only'' category with the ''complex related'' one, because its incidence was so small. The conditional transition probabilities are given in the rows of this matrix. For instance, the row labelled ''nuclear'' shows that there was a 3.8% probability of a nuclear household disappearing from the database (mainly due to migration); there was a 3.5% probability of such a household becoming a single-parent household; and a 4.2% and 4.1% probability respectively of such a household becoming a three-generation linear or ''complex, related'' household respectively.

Analysing the transition matrix as a whole, we note that there is considerable movement. Indeed transitions occur between all types of households. The relative frequencies are generally plausible. For instance, it is clear why a couple should have a relatively higher probability of becoming a nuclear family than changing into any of the other types. The fact that single-parent households change more readily into three-generation linear households (which requires the addition of either a grandchild or a parent) than into a nuclear household (which requires the addition of a spouse) is interesting, but not altogether surprising.

Table III. Changes in the distribution of household types 1995–96 to 2003 in the rural sub-sample of the national data sets and in the Agincourt DSS, South Africa.

	National data sets			Agincourt DSS		
	Difference	95% confidence interval		Difference	95% confidence interval	
Single person	0.095	0.072	0.119	−0.007	−0.012	−0.001
Couple	−0.005	−0.013	0.003	−0.001	−0.005	0.002
Nuclear	−0.156	−0.172	−0.140	−0.035	−0.045	−0.024
Single parent	−0.015	−0.028	−0.003	0.013	0.005	0.021
Three-generation linear	0.003	−0.011	0.017	0.028	0.018	0.037
Three-generation skip	0.030	0.024	0.037	0.015	0.011	0.019
Multi-generation	−0.014	−0.017	−0.012	0.021	0.016	0.027
Siblings only	0.013	0.008	0.017	0.003	0.000	0.005
Complex, related	0.045	0.031	0.058	−0.003	−0.013	0.007
Complex plus unrelated	0.004	0.000	0.008	−0.002	−0.004	0.001
Don't know				−0.032	−0.036	−0.027

'Other rural' and 'Tribal' sub-samples of the 1995 OHS were combined to construct the 'Rural' sub-sample for 1995.

Table IV. Annual pooled transition probabilities[a], Agincourt 1996–2003.

Household type	Household disappeared	Single	Couple	Nuclear	Single parent	Three-generation linear	Three-generation skip	Multi-generation	Complex related	Complex unrelated	Don't know
New household formed	0.000	0.220	0.060	0.287	0.187	0.071	0.020	0.027	0.124	0.003	0.002
Single	0.149	0.706	0.018	0.043	0.023	0.012	0.009	0.011	0.027	0.001	0.002
Couple	0.076	0.004	0.722	0.084	0.004	0.005	0.012	0.057	0.033	0.003	0.001
Nuclear	0.038	0.000	0.000	0.827	0.035	0.042	0.001	0.014	0.041	0.001	0.001
Single parent	0.066	0.001	0.000	0.046	0.740	0.068	0.001	0.021	0.054	0.002	0.001
Three-generation linear	0.018	0.000	0.000	0.019	0.024	0.823	0.027	0.020	0.066	0.001	0.002
Three-generation skip	0.038	0.001	0.000	0.002	0.004	0.091	0.704	0.094	0.062	0.004	0.001
Multi-generation	0.057	0.100	0.038	0.027	0.023	0.049	0.023	0.609	0.069	0.003	0.002
Complex, related	0.025	0.000	0.000	0.030	0.018	0.051	0.010	0.021	0.839	0.002	0.003
Complex, unrelated	0.022	0.000	0.000	0.053	0.022	0.047	0.006	0.047	0.105	0.697	0.002
Don't know	0.121	0.014	0.000	0.031	0.034	0.062	0.011	0.032	0.136	0.002	0.558

[a]Table contains probabilities of transition from the row household type to the column household type. Annual transition probabilities from year to year were averaged over the seven years.

The diagonal of the matrix is particularly interesting, since it represents the probability of a household of a given type persisting in that type. None of the entries on the diagonal exceeds 84%. The most stable household form seems to be the "complex, related" type, while "nuclear" and "three-generation linear" households also show persistence rates in excess of 80%.

The first column of the transition matrix is also revealing, since it captures transition out of the database. This is particularly important for the long-run dynamics. It is not surprising that single-person households have the highest propensity to disappear, since the death or migration of just that one individual will be sufficient for the household to cease to exist in our database. The relatively high propensity to disappear among households that could not be categorized is actually a case of reverse causation: in households that disappear, it is impossible to go back in the next round of interviews to collect missing relationship data! It is interesting to note that the household types that are least likely to disappear are three-generation linear households and the complex ones. This is to some extent a function of larger household size, since the median size of these household types is seven or eight members for the entire period. The median size of nuclear households, by contrast, is five individuals.

When we project the changes forward, we obtain the distribution of household types given in Table II under the heading "Long Run 1". The results from the sensitivity analysis where we pooled the "unknown" households with the "complex, related" ones are given in that table as "Long Run 2". The projected distributions are remarkably similar to each other. They suggest that the pattern of transitions favours an increase in three-generation and complex, related households at the expense of nuclear households.

Discussion

To return to the research questions outlined in the beginning, there is little evidence of an increase in "Western" style households (single, couple, and nuclear) at the expense of extended households. If anything, both the national data sets and the Agincourt DSS suggest the persistence of extended family living.

The national data sets do suggest a veritable explosion in solitary living. The discrepancy in this regard between the national data sets and the Agincourt DSS data is startling. However, comparisons across the different national data sets have to

be treated with caution since there were important changes in sampling frames, post-stratification weights and design between each of these data sets. For instance, in the 1995 October Household Survey migrant worker hostels were under-sampled. Residents of these hostels would have been classified as ''single-person households''. The 95% confidence intervals are likely to be misleading in this context, since non-sampling errors will be much more important. In a different context, Ziehl notes that changes in the way that domestic workers are recorded may also lead to large changes in the number of single-person households [1].

As far as the second research question is concerned, there is as yet little evidence that the HIV/AIDS epidemic is leading to the collapse of traditional forms of household organization. We do not observe child-headed households or an increase in other non-standard types of households. There does seem to be evidence that households are absorbing additional relatives and grandchildren. The projected increase in the proportion of extended household types (both three- and multi-generational) and complex, related households may be a sign of household recomposition in the face of adult outmigration or mortality.

Finally we observe that the longitudinal evidence does, in fact, add considerably to the simple cross-sectional picture. It does so in at least three ways: first, the longitudinal nature of the DSS allows us to impose more consistent definitions of a household across the period. By contrast, changes in sampling frame or measurement can lead to incommensurability in the national data sets. Indeed we suspect that the explosion in single-person households captured in the national data sets may be more apparent than real.

Second, our analysis of the transition matrix for Agincourt shows that the relative stability of the distribution of household types shown in Table II masks considerable movement between household types each year. Some of the transitions (such as ''couple'' to ''complex, related'') are not consistent with simple ''family cycle'' models based on contemporary Western societies [4,20]. They suggest that households are potentially more fluid than we might expect. In this regard they seem more similar to patterns described for African-Americans [14].

Third, our forward projection suggests that the pattern of transitions favours an increase in the ''complex, related'' category, despite the fact that the year-on-year changes do not as yet reveal a marked increase in this household type.

These findings need to be hedged with some caveats. Our use of the longitudinal data would be even more powerful if we could track individual transitions along with the household transitions [15,16,21,22]. Furthermore, it is questionable whether the transition probabilities will remain constant over time.

Conclusion

In the analysis of national data sets and the Agincourt DSS a consistent picture seems to be emerging. It suggests that households are being reshaped. In particular it seems as though three-generation linear households and complex, related households will account for an increasing proportion of all households within the Agincourt study site, while nuclear type households will become relatively less common.

These trends may very well presage some of the consequences of HIV/AIDS mortality and attendant household restructuring. Notwithstanding likely and considerable social pressure, there is no evidence in these data to suggest that the Agincourt social fabric is unravelling or that non-standard households are becoming common. Of course the picture is not static and the transition probabilities will change as deaths from the HIV/AIDS epidemic escalate yet further (or, indeed, moderate in response to expanding antiretroviral coverage).

Nevertheless our analysis is a useful corrective to perspectives based on national data sets alone, which might suggest much more dramatic household-level restructuring. Indeed, one of the major benefits of our study is that it shows the value of triangulating national data sets with demographic surveillance data.

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Note

1 The steady-state distribution is the distribution obtained by repeating the household transitions many times with the same probabilities until an ''asymptotic'' distribution is reached, whereby further transitions do not change the distribution.

References

[1] Ziehl S. Documenting changing family patterns in South Africa: Are census data of any value? African Sociological Rev 2001;5:36–62.

[2] Russell M. Are urban black families nuclear? A comparative study of black and white South African family norms. Social Dynamics 2003;29:153–76.

[3] Russell M. Understanding Black households: The problem. Social Dynamics 2003;29:5–47.
[4] Hareven TK. Cycles, courses and cohorts: Reflections on theoretical and methodological approaches to the historical study of family development. J Social History 1978;12:97–109.
[5] Case A. Does money protect health status? Evidence from South African pensions. NBER Working Paper 8495, 2001.
[6] Case A. Health, income and economic development. Annual World Bank Conference on Development Economics 2001/02. p 221–41.
[7] Case A, Deaton A. Large cash transfers to the elderly. Economic J 1998;108:1330–61.
[8] Castro-Leal F. The impact of public health spending on poverty and inequality in South Africa. World Bank Informal Discussion Paper No. 19333, February 1999.
[9] Castro-Leal F, Dayton J, Demery L, Mehra K. Public spending on health care in Africa: Do the poor benefit? Bull World Health Organ 2000;78:66–74.
[10] Sloth-Nielsen J. Too little, too late? Provisioning for Child Headed Households. ESR Rev 2002;3. Available at: http://www.communitylawcentre.org.za/ser/esr2002/2002july_child.php#child (accessed 27 July 2005).
[11] Leibbrandt M, Poswell L, Naidoo P, Welsh M, Woolard I. Measuring recent changes in South African inequality and poverty using 1996 and 2001 census data. Working Paper 04/84. Cape Town: Centre for Social Science Research, University of Cape Town; 2004.
[12] Statistics South Africa, General household survey, July 2003. Metadata: Statistical Release P0318, Pretoria: Statistics South Africa; 2003.
[13] Gilbertson G, Gurak D. Household transitions in the migrations of Dominicans and Colombians to New York. Int Migration Rev 1992;26:22–45.
[14] Hunter A, Ensminger M. Diversity and fluidity in children's living arrangements: Family transitions in an urban Afro-American community. J Marriage and the Family 1992;54:418–26.
[15] Richards T, White MJ, Tsui A. Changing living arrangements: A hazard model of transitions among household types. Demography 1987;24:77–97.
[16] White M, Tsui A. A panel-study of family-level structural change. J Marriage and Family 1986;48:435–46.
[17] Wittenberg M, Collinson M. Restructuring households in rural South Africa: Reflections on average household size in the Agincourt sub-district 1992–2003. Cape Town: School of Economics, University of Cape Town and Johannesburg: Agincourt Health and Population Unit, University of the Witwatersrand; 2005.
[18] Pirouz F. Have labour market outcomes affected household structure in South Africa? A descriptive analysis of households. Johannesburg: School of Economic and Business Sciences, University of the Witwatersrand; 2005.
[19] Garenne M, Tollman S, Kahn K. Premarital fertility in rural South Africa: A challenge to existing population policy. Stud Fam Plann 2000;31:46–54.
[20] Cherlin A. Changing family and household: contemporary lessons from historical research. Ann Rev Sociol 1983;9:51–66.
[21] Settersten R Jr, Hägestad G. What's the latest? Cultural age deadlines for family transitions. Gerontologist 1996;36:178–88.
[22] Settersten R Jr, Hägestad G. What's the latest? II. Cultural age deadlines for educational and work transitions. Gerontologist 1996;36:602–13.

About DatatFirst

DataFirst is a research unit at the University of Cape Town engaged in promoting the long term preservation and reuse of data from African Socioeconomic surveys. This includes:

- the development and use of appropriate software for data curation to support the use of data for purposes beyond those of initial survey projects
- liaison with data producers - governments and research institutions - for the provision of data for reanalysis
- research to improve the quality of African survey data
- training of African data managers for better data curation on the continent
- training of data users to advance quantitative skills in the region.

The above strategies support a well-resourced research-policy interface in South Africa, where data reuse by policy analysts in academia serves to refine inputs to government planning.

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