Stopping, spacing and postponing: The future of the African fertility decline

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Background

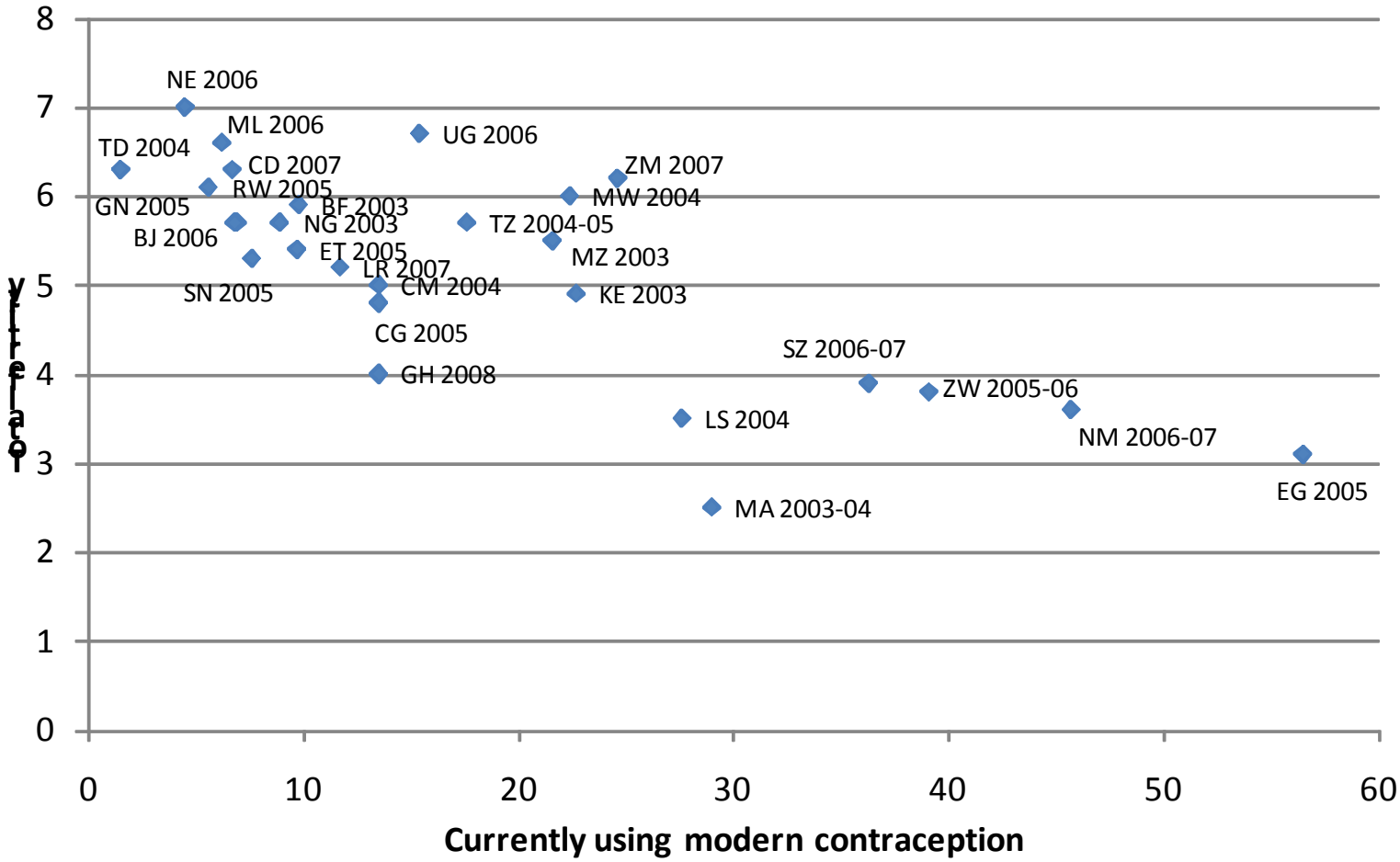
- The recent trajectory of fertility in Africa is better understood now than at any time in the continent's past
  - Brought about largely by the spread of Demographic and Health Surveys
  - … although census data and vital registration systems remain – almost without exception – deficient and highly problematic,
  - and sample size constrains reliability of estimates from the DHS below a national level

Background

- Stalled fertility declines have been identified in several countries (e.g. Kenya, Ghana, Zimbabwe)
  - but there is a lack of agreement as to what constitutes a stall,
  - or , indeed, the existence and causes thereof

- In the vast majority of countries, fertility decline has been slow, and is often somewhat at odds with reported current contraceptive prevalence rates.

Contraceptive use and total fertility (DHSs 2003-2008)



Quantum and tempo in fertility transitions

- Rapid decline in fertility can only come about with an increase in the proportion of women who stop childbearing at low parities
- Spacing (and, as we have argued elsewhere, postponing) of childbearing shifts the timing of births, and only if sustained over an extended period of time will the initial tempo effect translate into a quantum reduction in fertility
- Examination of family formation strategies might help to cast light on the generally slow pace of fertility decline in Africa
  - In other words, in trying to assess the future prospects for fertility decline, we should be looking at revealed (as opposed to declared) family formation preferences

Family formation strategies

Birth intervals offer a useful lens through which to examine these dynamics

- Notions of stopping and spacing have been widely accepted in the developing country literature
  - The dichotomy is written into the skip patterns of DHS questionnaires
- However, postponing is a distinct, practicable and important alternative to limiting and spacing in developing countries
  - By postponing, we mean delaying having another birth for reasons other than the age of one's youngest child (i.e. spacing) or one's existing family size (i.e. limiting).
- Previous research has documented widespread postponing in South Africa and lengthening of birth intervals elsewhere in Southern Africa

Birth intervals in Africa

- Here we present the results of ongoing work that seeks to provide a more nuanced narrative of fertility decline in sub-Saharan Africa
  - We look at the changing hazards of women closing birth intervals over time and associate these with changes in the proximate determinants of birth interval length
  - We also demonstrate how additional insights into the future pace of the African fertility decline can be derived from the dynamics of child spacing and family formation.

Proximate determinants of birth interval length

- While the proximate determinants of birth interval length are mostly the same as those governing fertility, neither termination of pregnancy nor extended periods of breastfeeding and/or postpartum abstinence can plausibly account for a significant lengthening of birth intervals
- The principal determinants underlying a substantial lengthening of birth intervals must be

1. increased use of (modern) contraception and/or
2. changes in marriage patterns

➔ We examine the relative effects of marriage and contraceptive use on trends in birth intervals across sub-Saharan Africa

Data and methods

- Data from 66 DHS s from 25 countries
- Single event-exposure file constructed for each country, analytical time defined in terms of segments of time since last birth
- Piecewise log-rate hazard models fitted to the data, examination of gross and net effects
- Hazards converted into life tables, and median birth intervals used as a summary measure
  - Results compared with those produced applying the Brass-Juárez technique
- Full description of the model fitted, as well as the controlling for selection effects, in Moultrie, Sayi and Timæus (2009)

Covariates

- To remove selectivity, we control for
  - Birth order of index child
  - Mother's age at start of each interval segment (time-varying)
  - Secular time at start of each interval segment
- Proximate determinants
  - Ever married at birth of index child
  - Ever used modern contraception at birth of index child
    - DHS question asks women about living children at first use, which may not equal parity if the mother has dead children
- To capture possible postponing effects, we allow interaction between contraceptive use and secular time, and duration and duration-squared since last birth

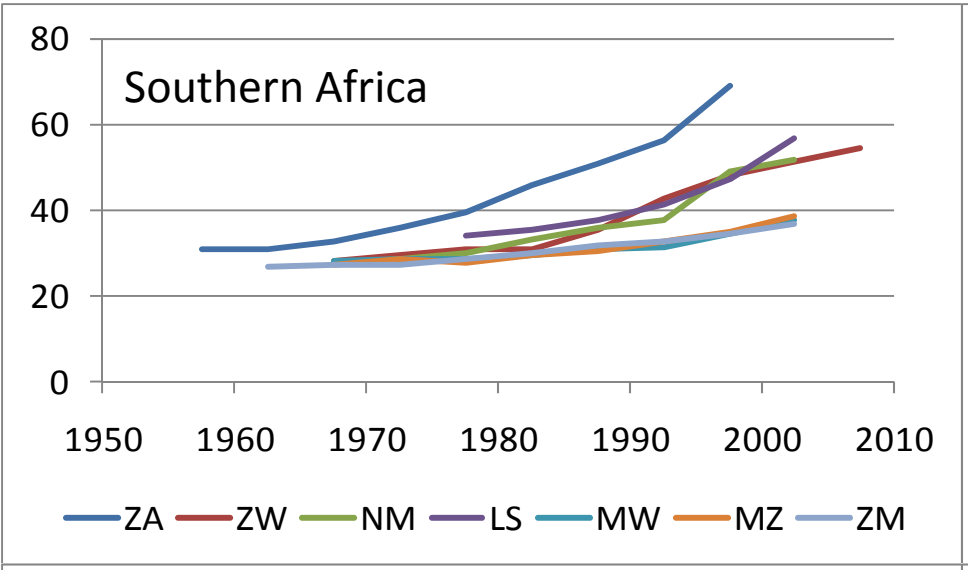
Results : Gross effects

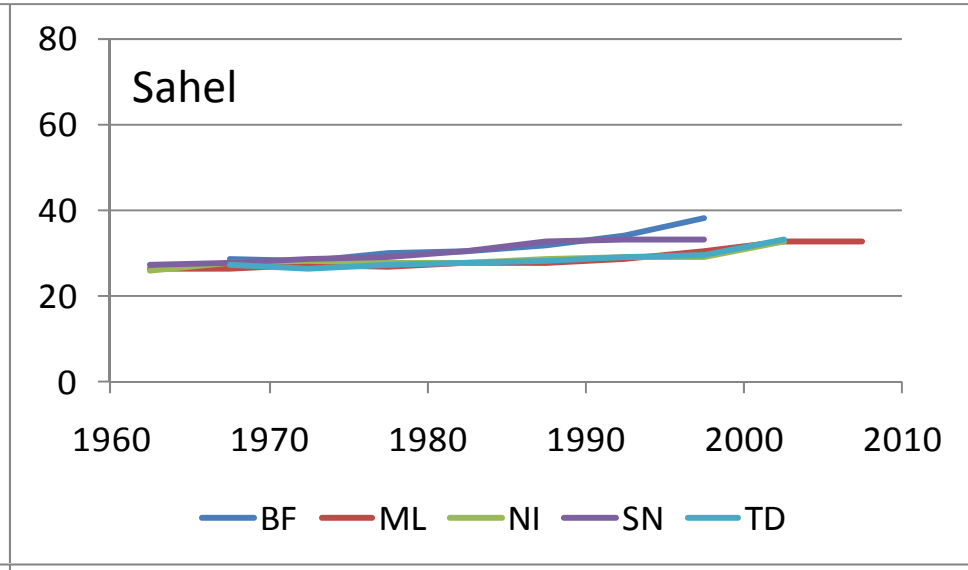
- Period median birth intervals correspond extremely well with results from Aoun's extension of the Brass-Juárez method to projected (cohort) median birth intervals
  - Strong validation of the results from the earlier method

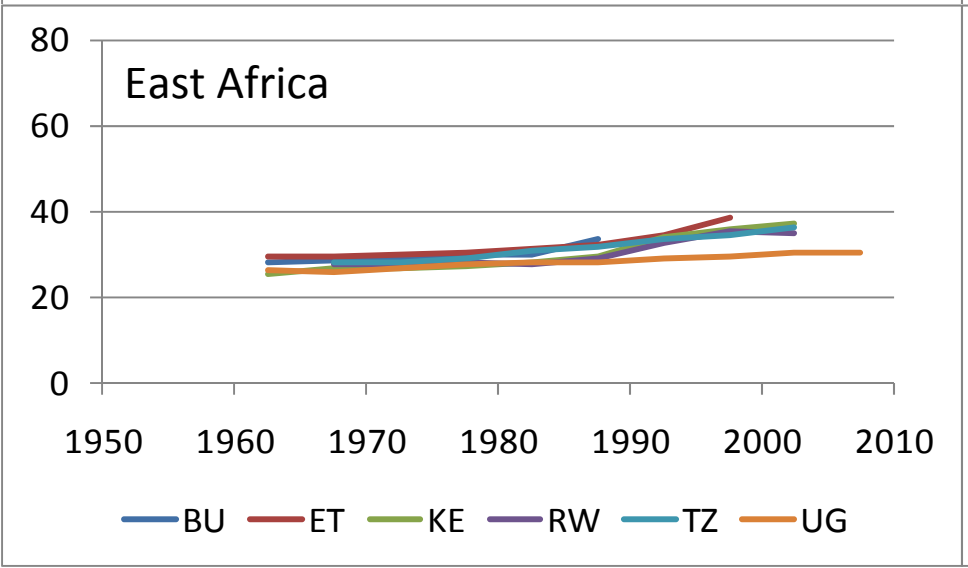
- Birth intervals in Southern Africa have increased dramatically over time, especially in South Africa, Namibia, Lesotho and Zimbabwe. Elsewhere in the region, birth intervals have increased slowly, if at all

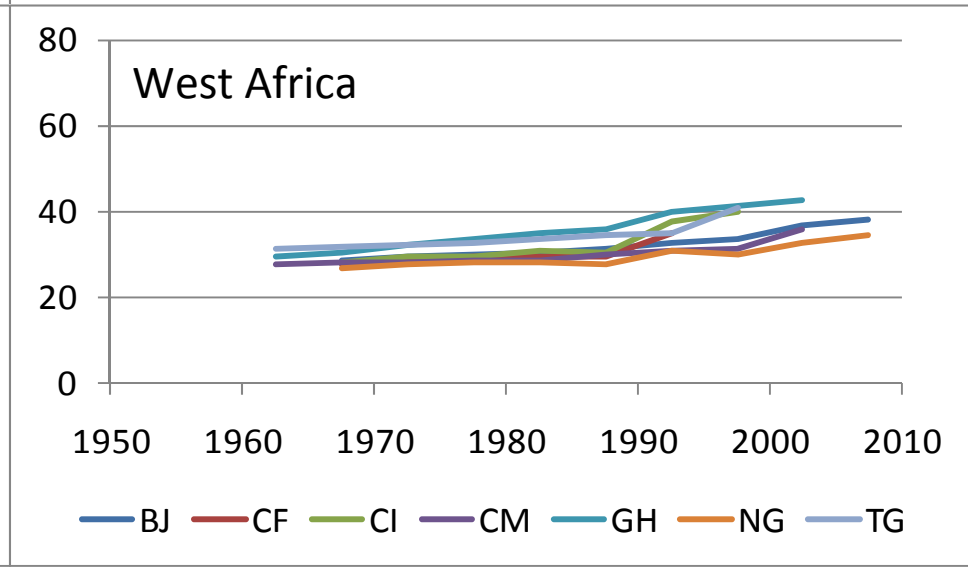
- These findings are consistent both with the low levels of contraceptive use and the Caldwell hypothesis about fertility decline in Africa.

Birth intervals, by region and country

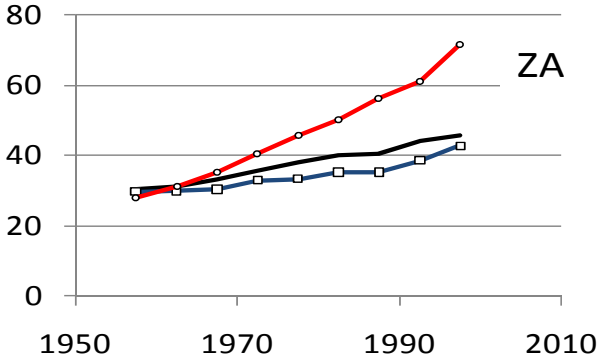


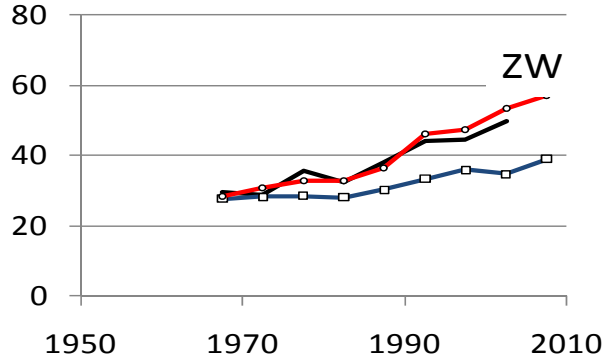


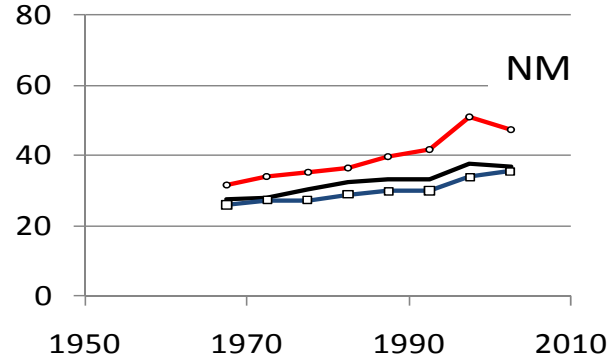


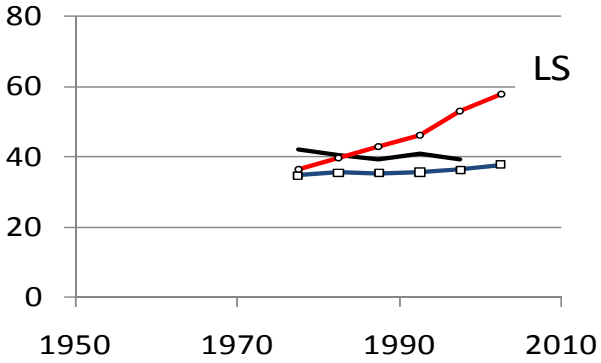


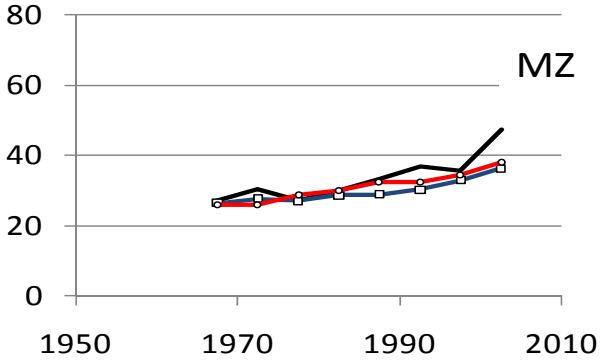
Results : Southern Africa - Nett

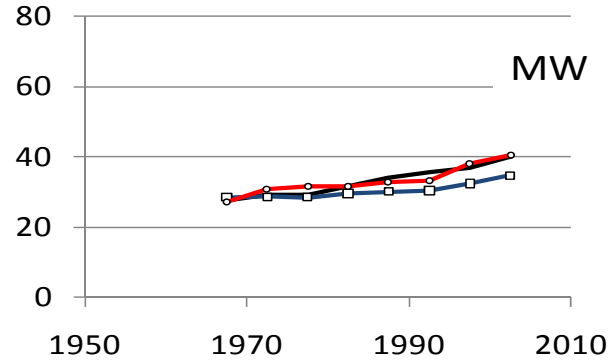


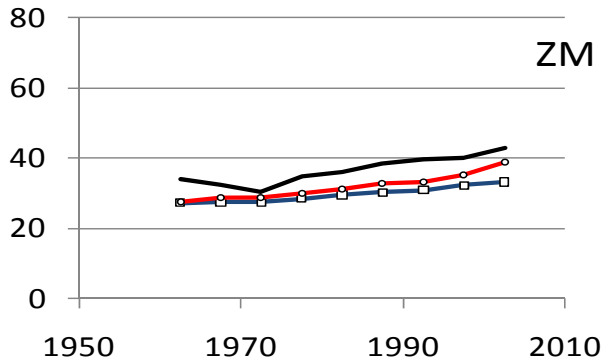












Married - Contracepted

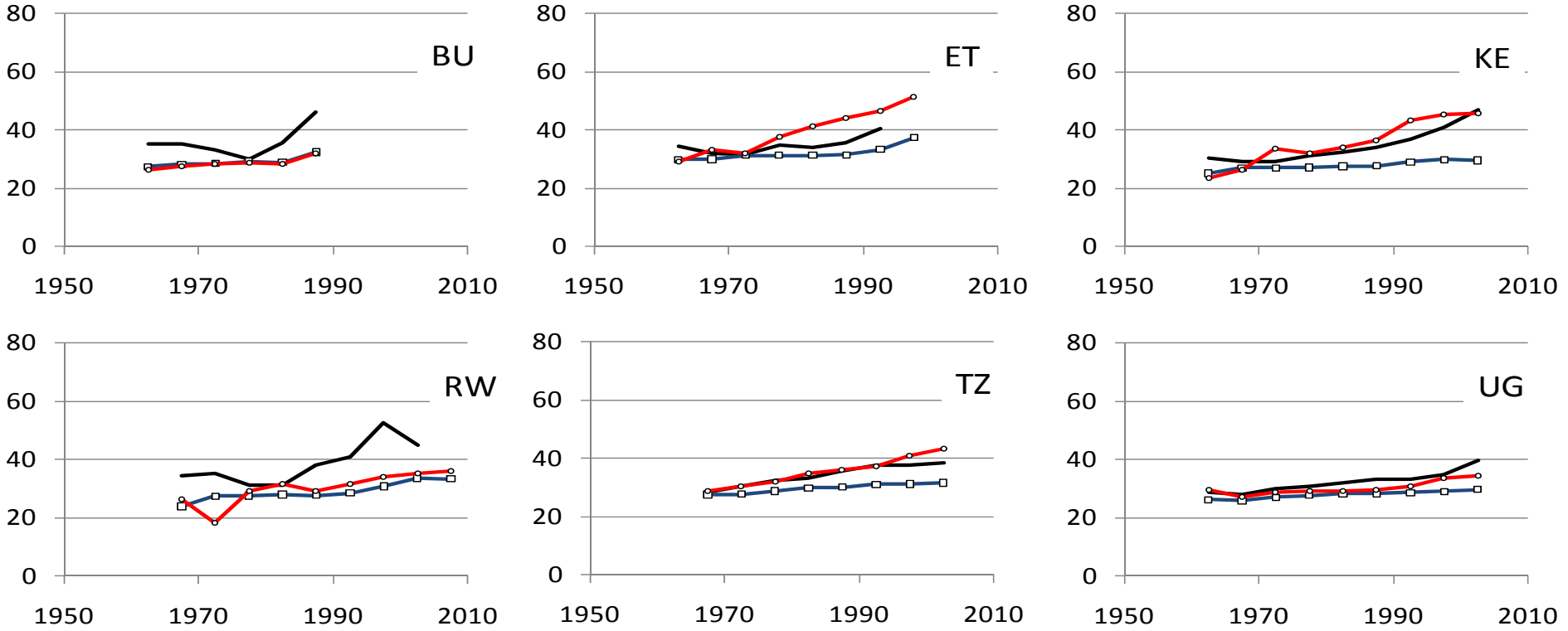
Not Married - Not Contracepted

Married - Not contracepted

red v blue - effect of contraception

black v blue - effect of marriage

Results : East Africa - Nett



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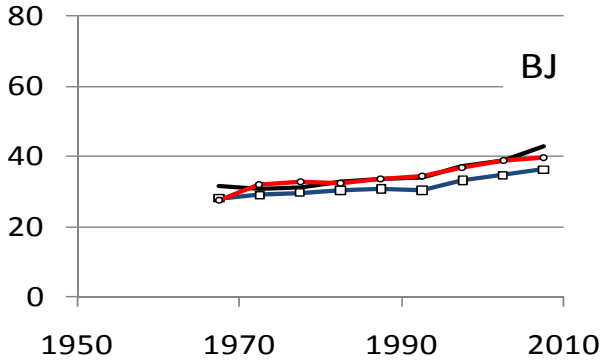

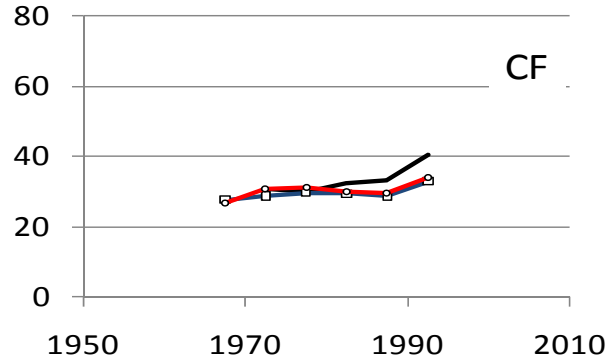

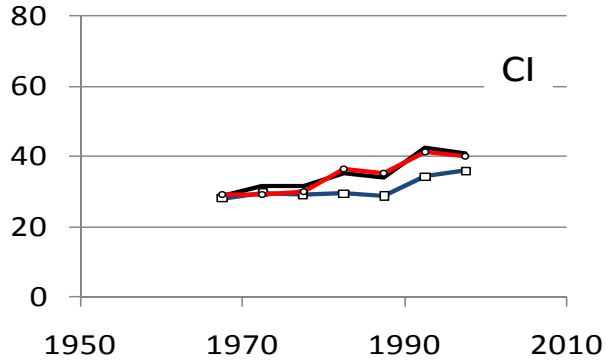

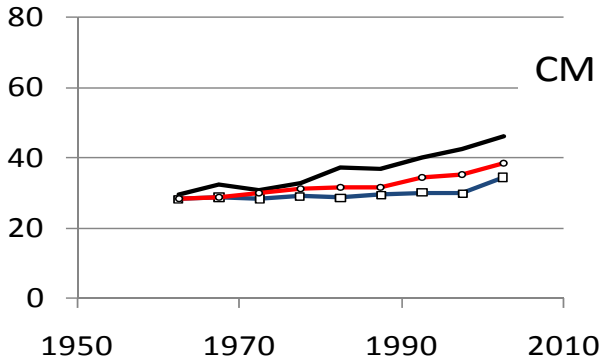

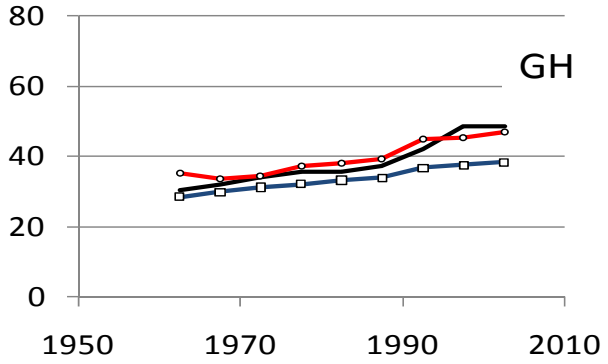

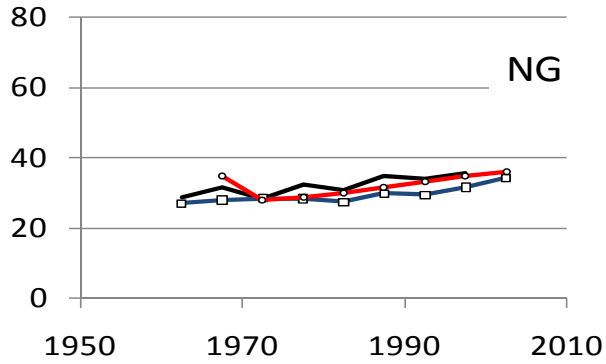

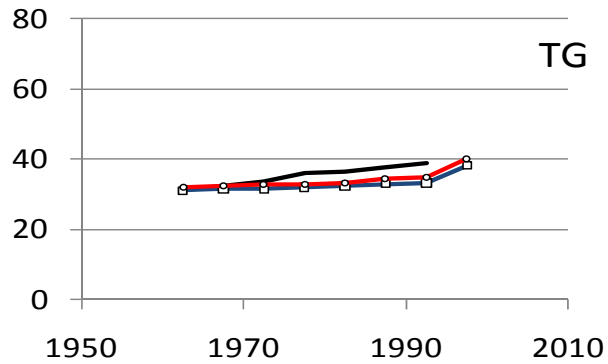

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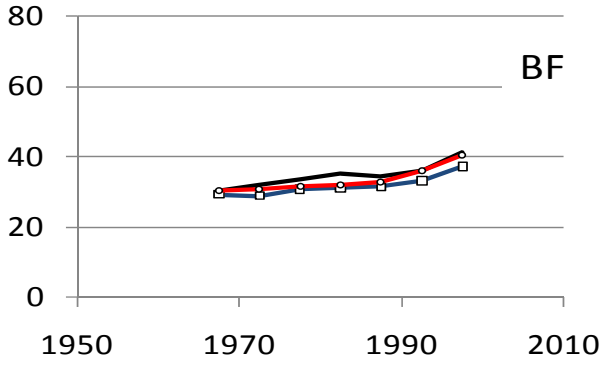
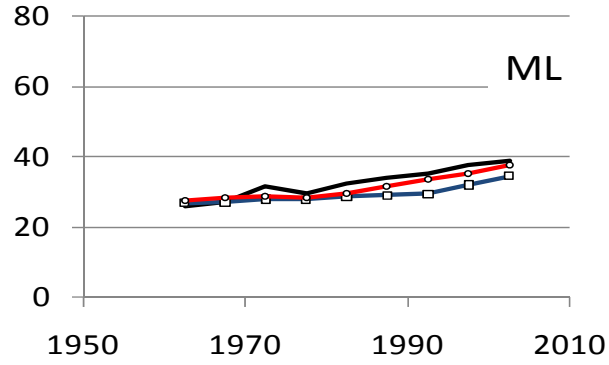
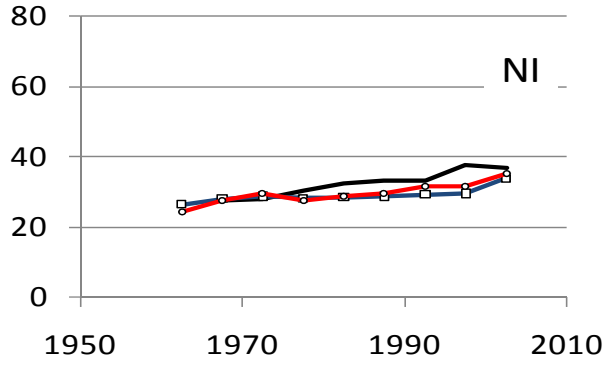
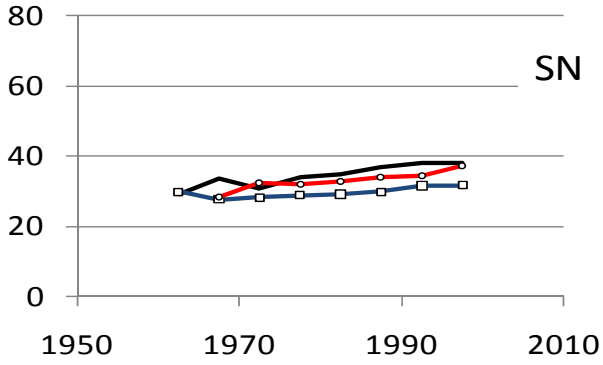
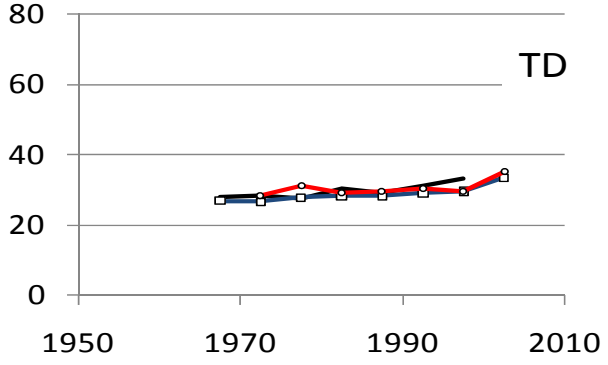
Results : Sahel - Nett











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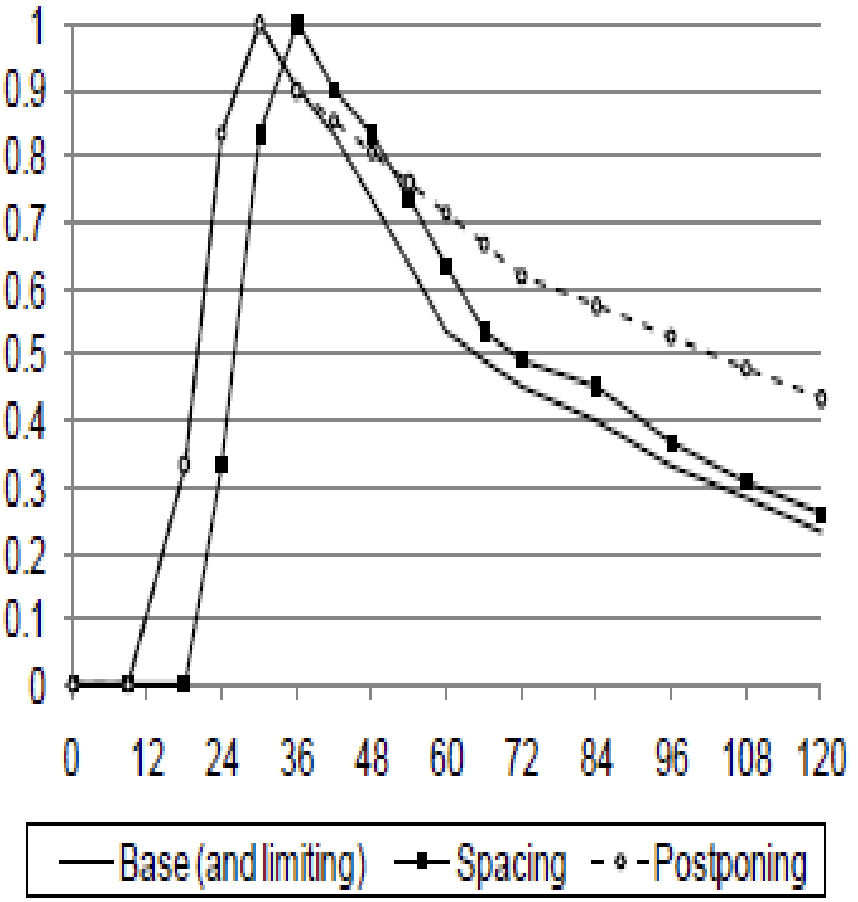
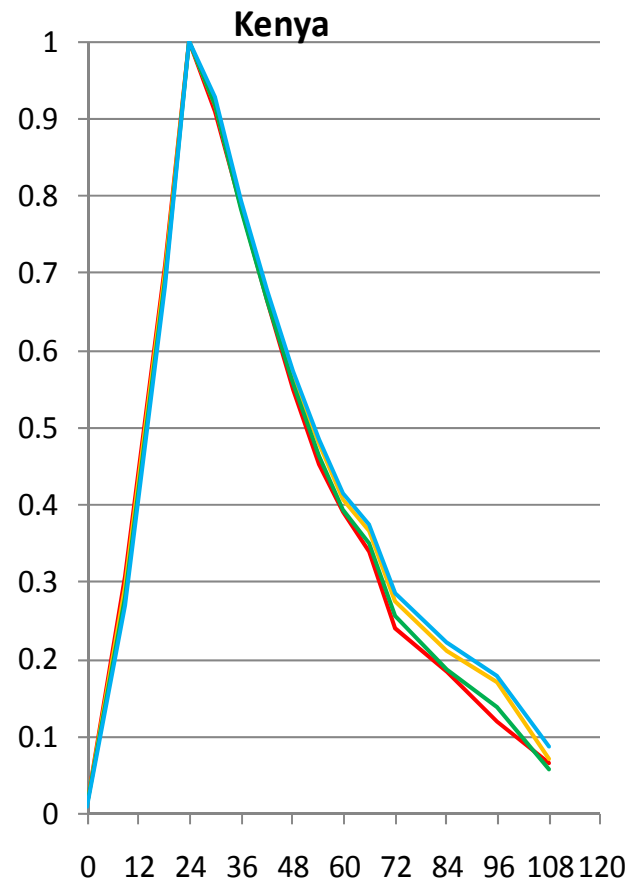
Determination of family formation strategies

- Examine changes in the coefficients describing the shape and position of the hazard function associated with closing a birth interval over time
- Alternatively, examine hazards relative to peak hazard over time since last birth



East Africa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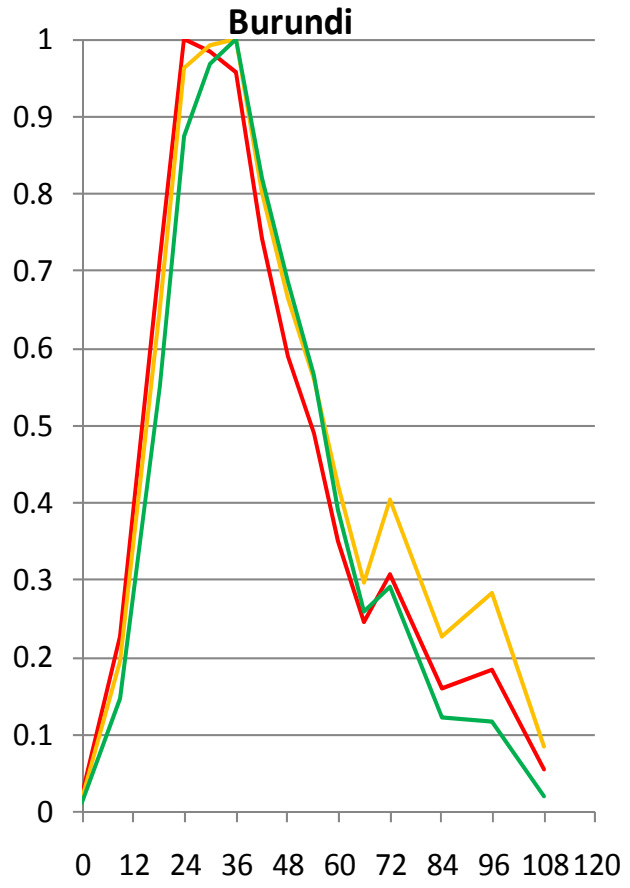
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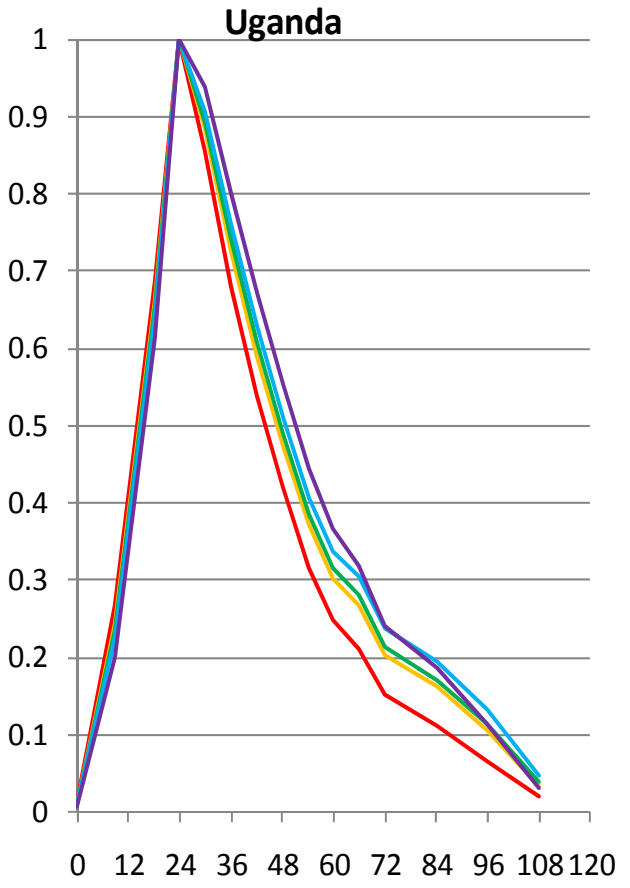
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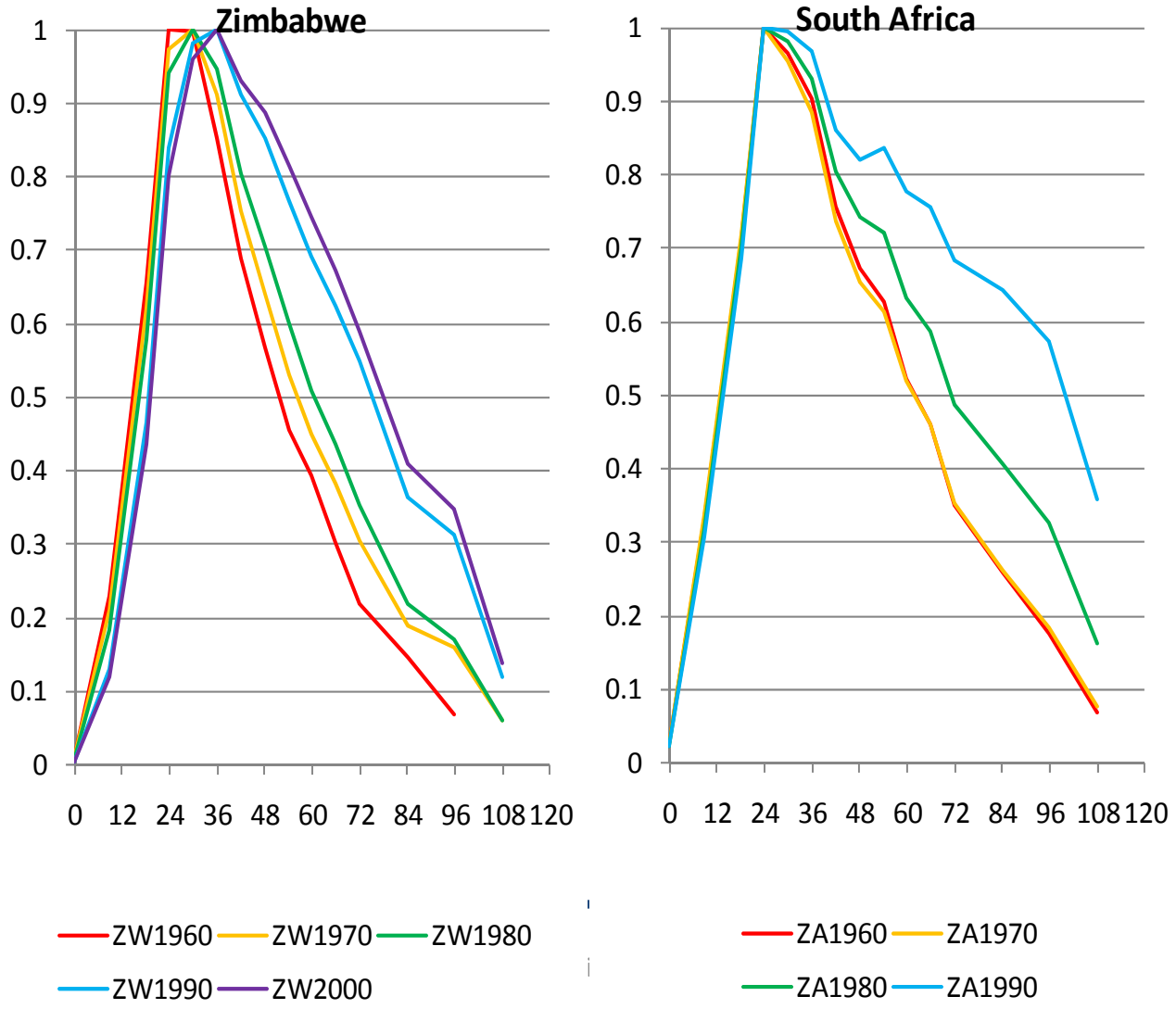
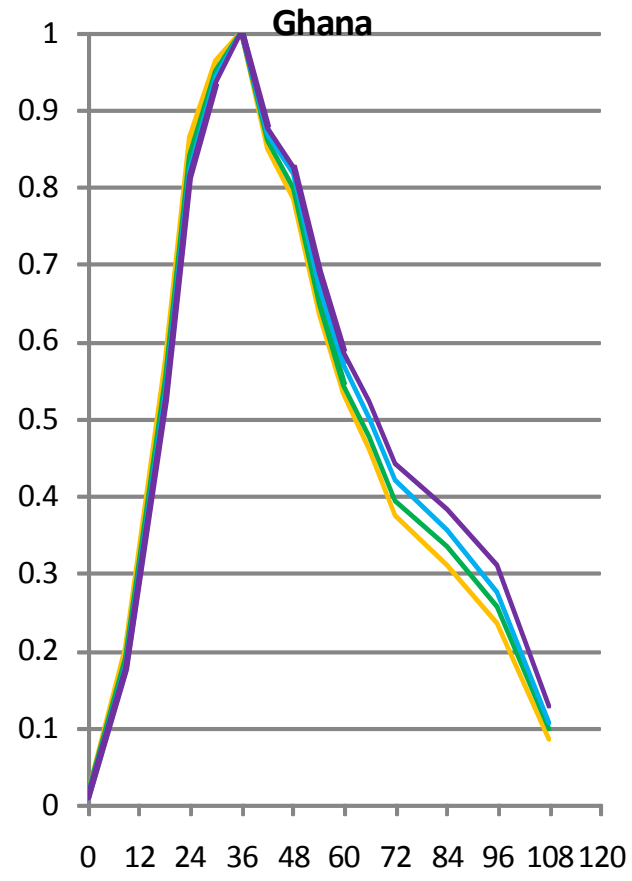
Southern Africa



West Africa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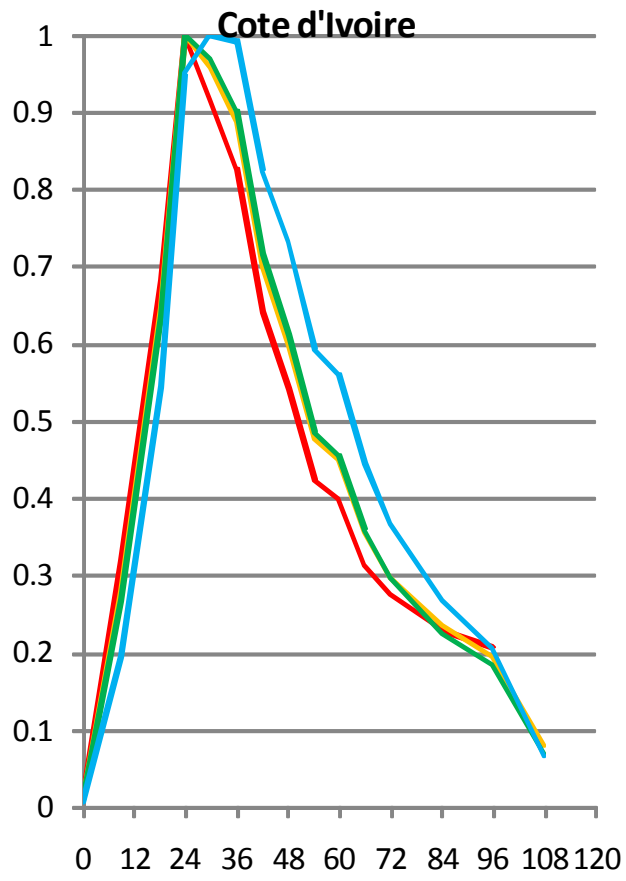
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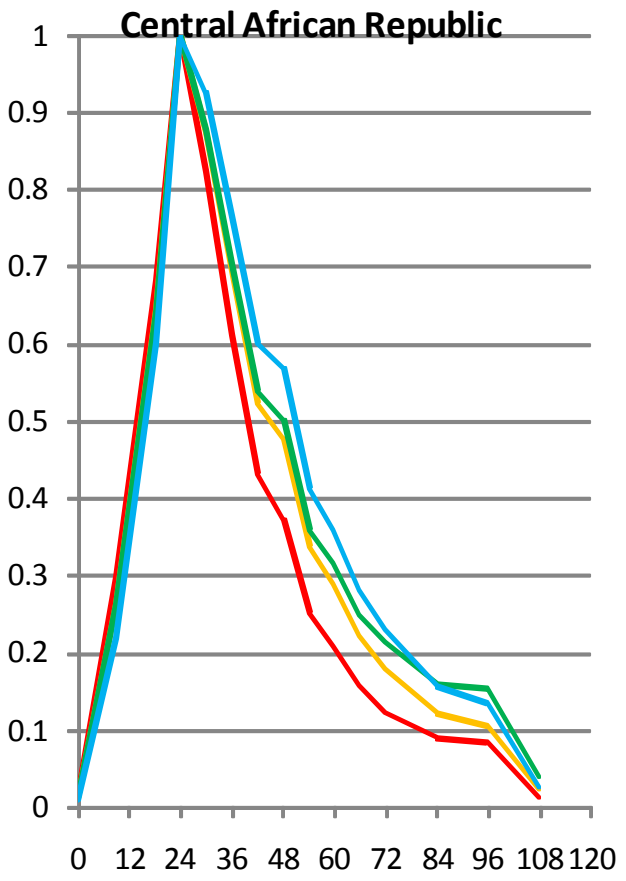
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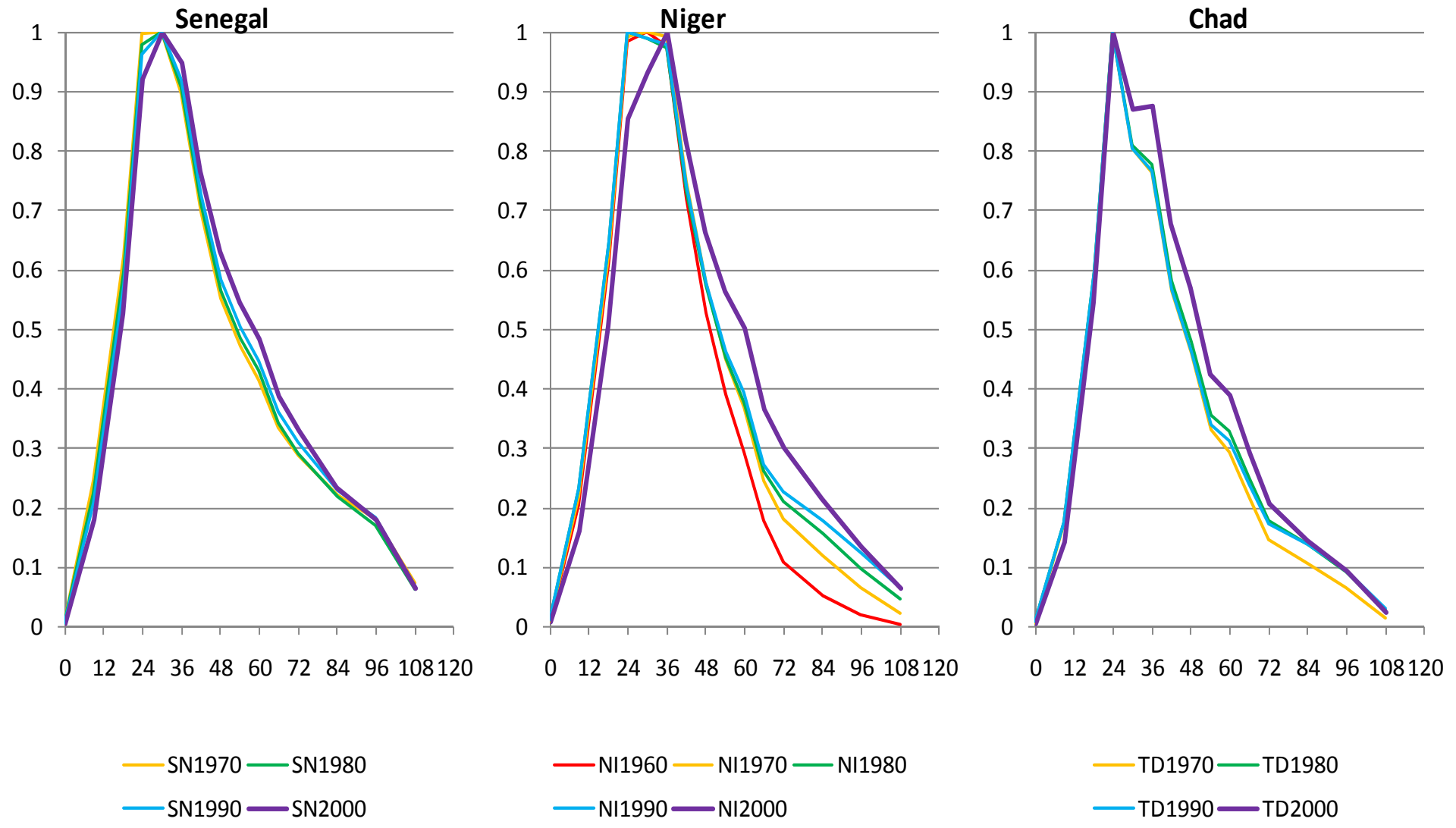
Sahel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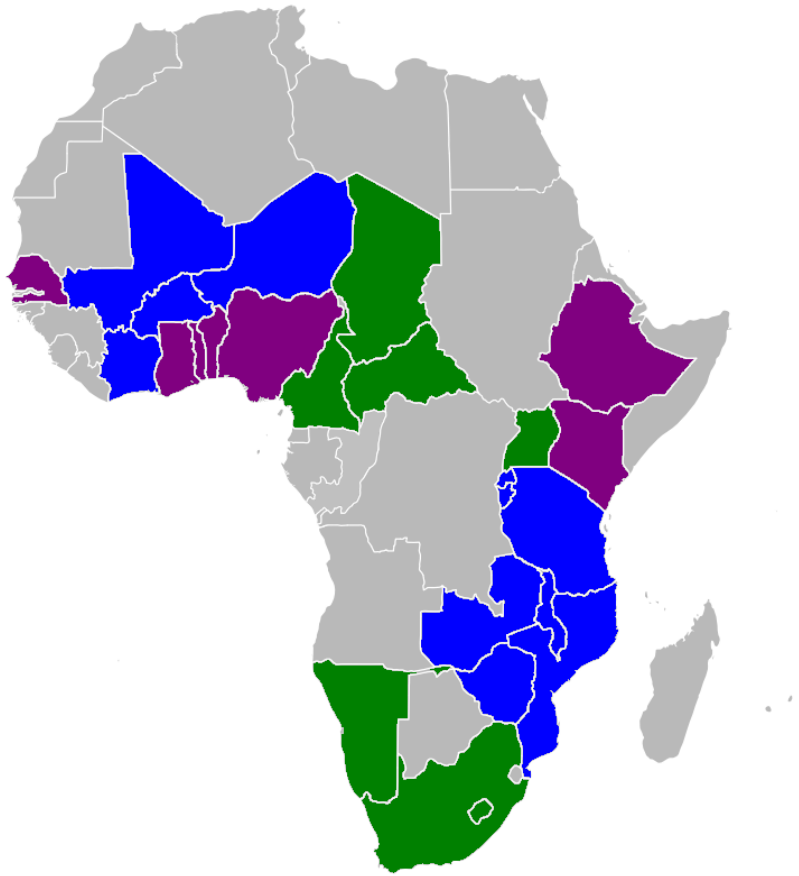
Classification of countries by dominant family formation strategy

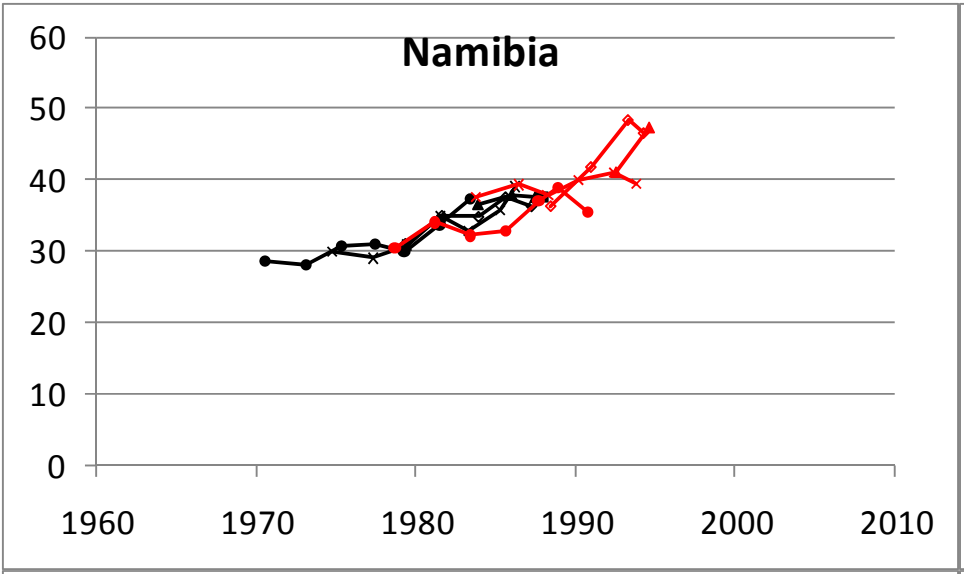


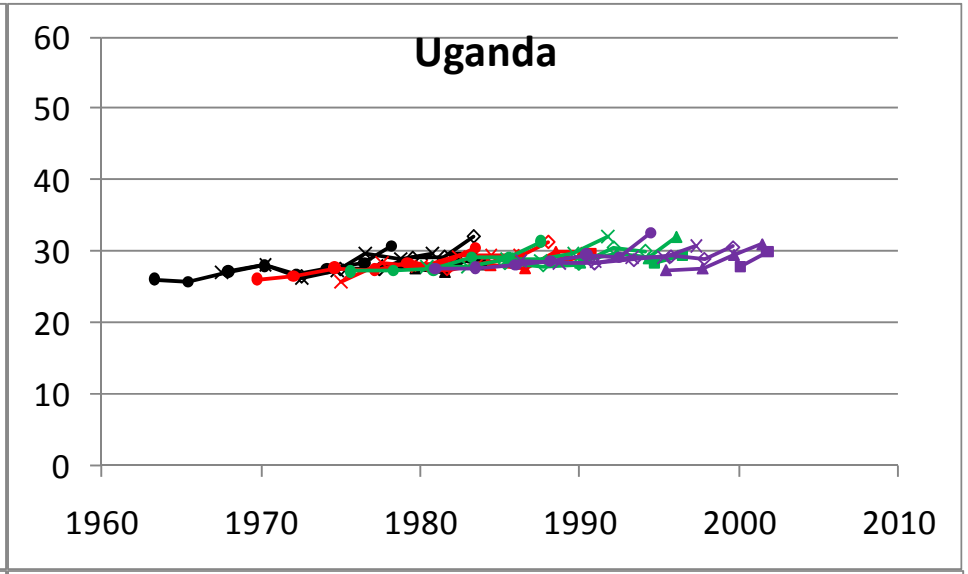
- Limiting
  - Ghana, Togo, Kenya, Ethiopia
  - (?) Senegal, Benin, Nigeria
- Spacing
  - Mali, Niger, Burkina, Cote d'Ivoire, Rwanda, Burundi, Tanzania, Zambia, Malawi, Mozambique, Zimbabwe
- Postponing
  - Chad, Cameroon, C.A.R, Uganda, Namibia, Lesotho, South Africa

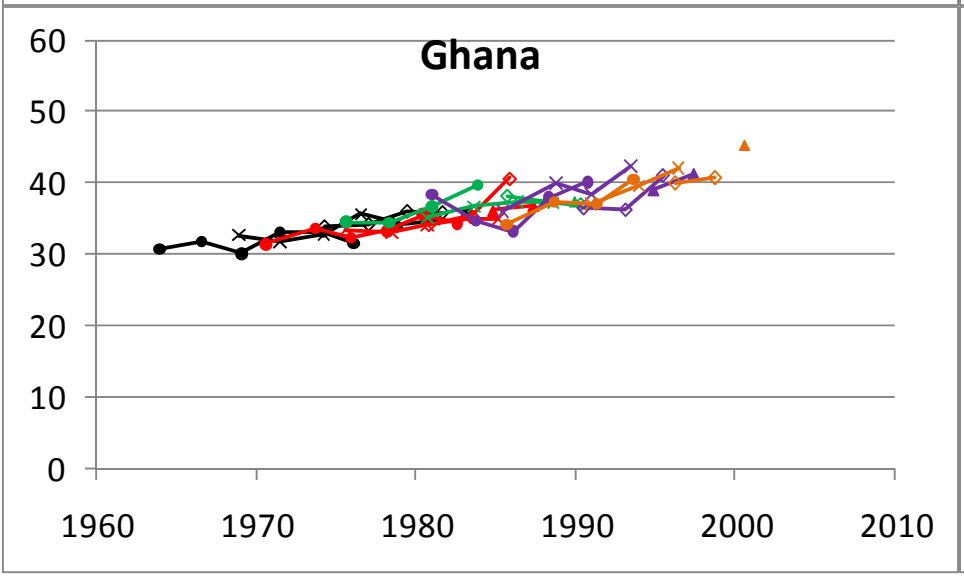
An African fertility transition

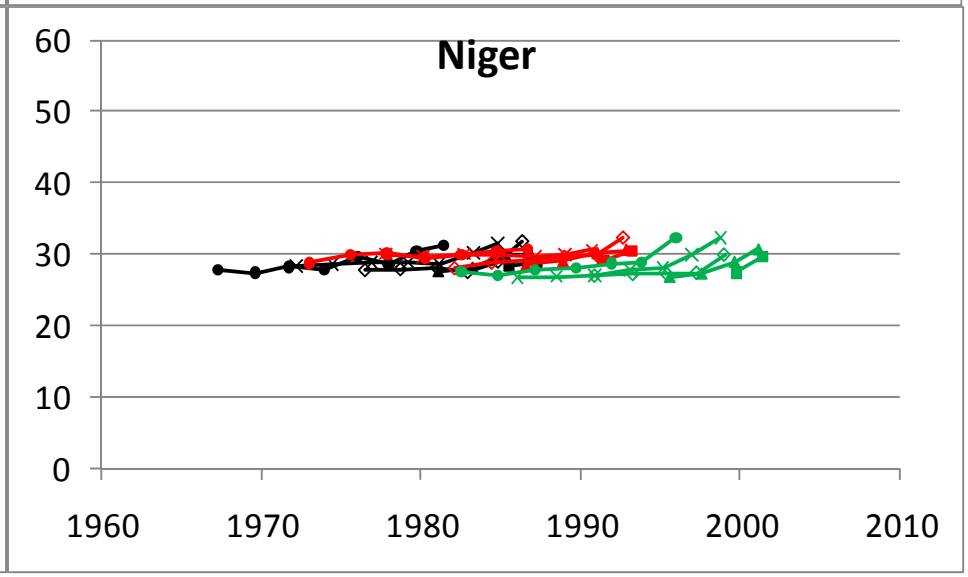
- In countries where birth intervals have lengthened substantially, use of contraception has been the principal contributor
- In the overwhelming majority of countries studied, hazards of closing a birth interval suggests that family size limitation is not the principal reason for using contraception
  - Instead, as Caldwell suggested, women use contraception as a means to implement desired child spacing preferences, or to postpone births
- Moreover, in almost every country, both cohort and parity are very poor predictors of birth interval length
  - Unlike that observed in moderate-high fertility countries in South-East Asia

Birth intervals by cohort and parity



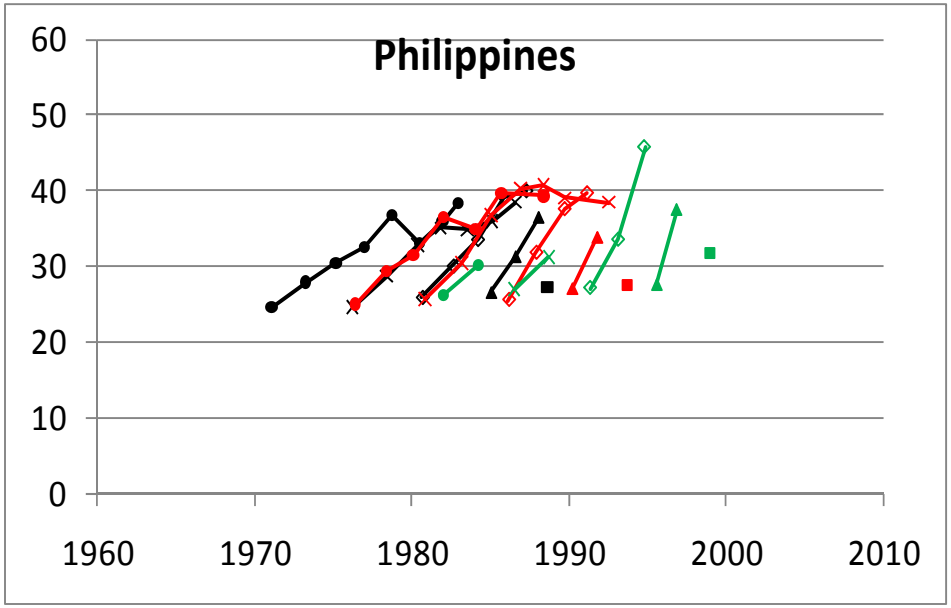






Birth intervals by cohort and parity

- By contrast, the fertility decline in the Philippines has been characterised by clear fertility limitation, and parity-specific birth intervals
- This pattern is repeated across many countries in South-East Asia



Conclusions – Substantive

- Fertility decline in Africa **is** following a very different path compared with other parts of the world
- Birth intervals **are** lengthening at all ages and parities
- The lengthening of birth intervals is being achieved largely by use of contraception
  - Marriage is not a good predictor of the trend in birth intervals

- Very little evidence of parity-specific family size limitation except possibly in Ghana, Togo, Kenya and Ethiopia
- Still uncertain whether the South African-Namibian pattern is *sui generis*, or they are in the vanguard of an African pattern of transition that is emerging elsewhere in the region

Implications for fertility decline in Africa

- Confirmation of the Caldwell hypothesis
  - Contraception is being used principally to space rather than to limit births
  - Fertility decline is happening at all ages and parities simultaneously, unlike in other parts of the developing world
  - Postponement of births, as distinct from spacing, matters in some settings – especially in Southern Africa

- Sustained and rapid fertility decline in sub-Saharan Africa is most likely to come about through increased contraceptive use, specifically to limit fertility
  - On present indications, this appears possible in only a handful of African countries.