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# Stalls in Africa's fertility decline are consequence of education disruptions in the 1980s

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9<sup>th</sup> Young Demographers  
Conference , Prague



Wittgenstein Centre

FOR DEMOGRAPHY AND  
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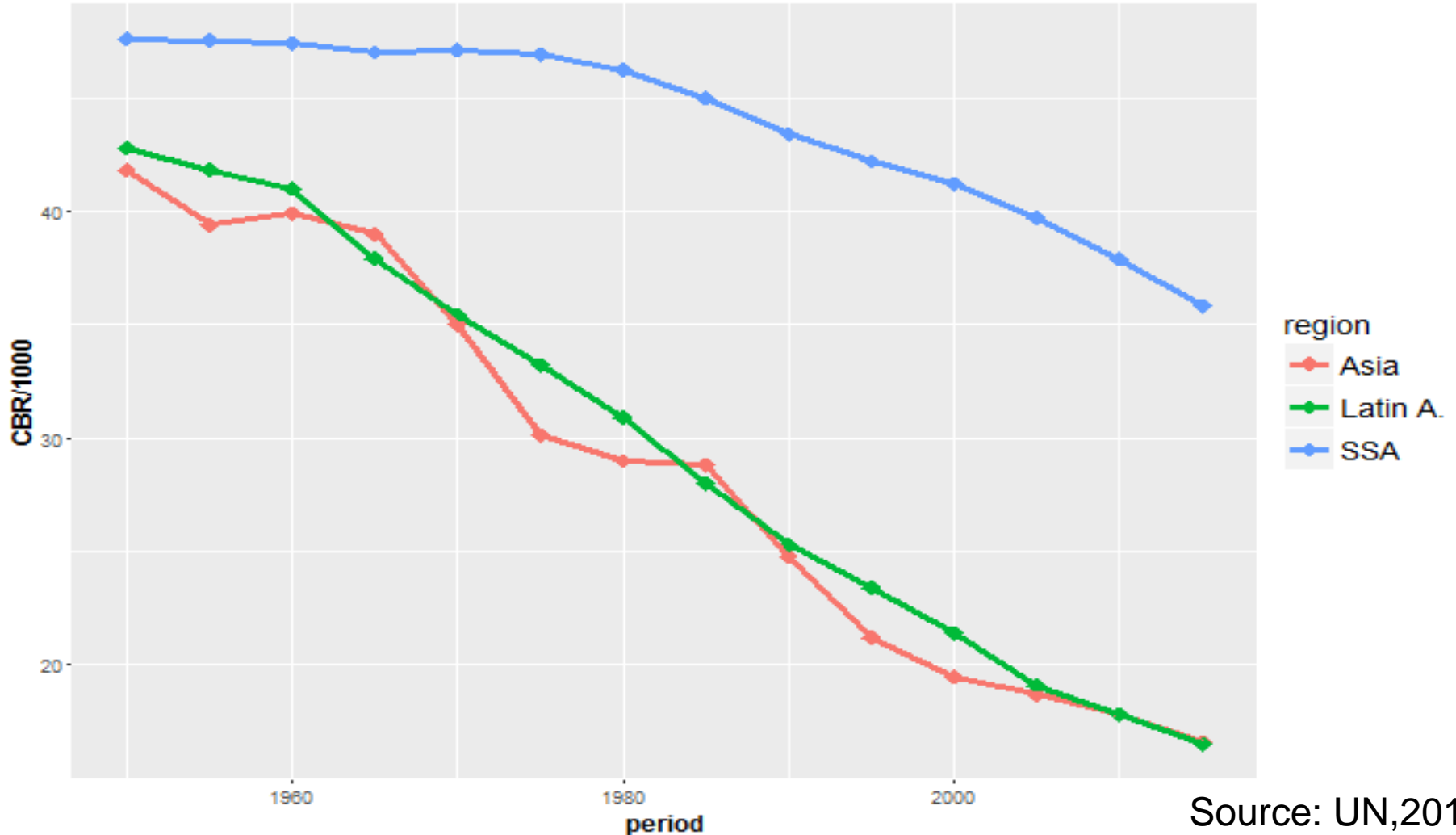
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VIENNA

# Introduction

- Fertility decline in SSA Started late..

Fertility Transition of Developing regions

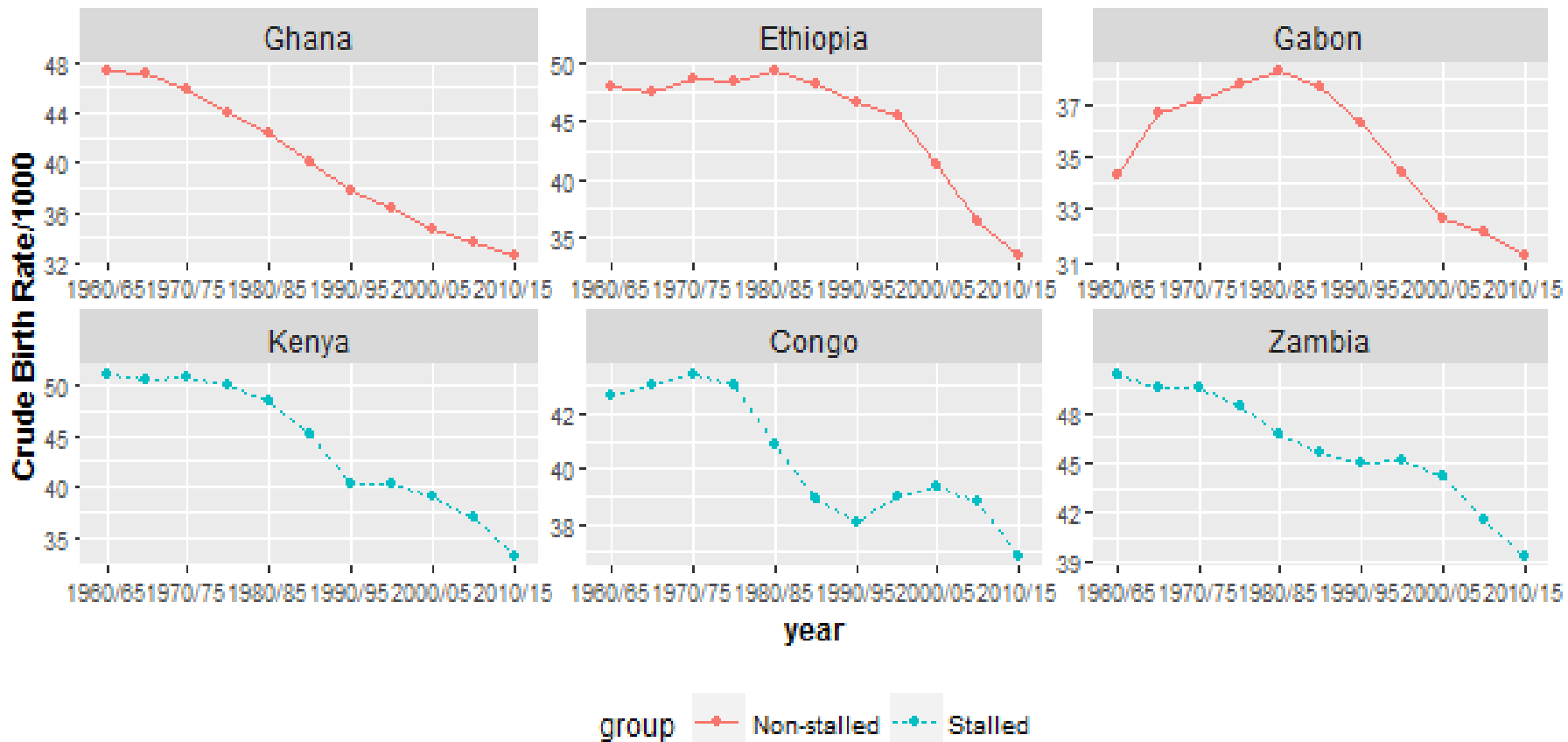


Source: UN, 2015

# Introduction

- The declining trends in fertility rates had stalled in the years around 2000

CBR/1000 Population by stalling status of countries



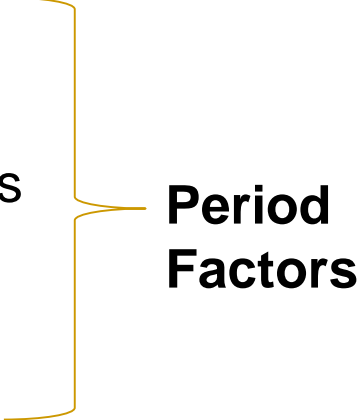
# Main Research Question

- Why does the declining trends in fertility rates in SSA had stalled in the years around 2000?

## Hypothesis

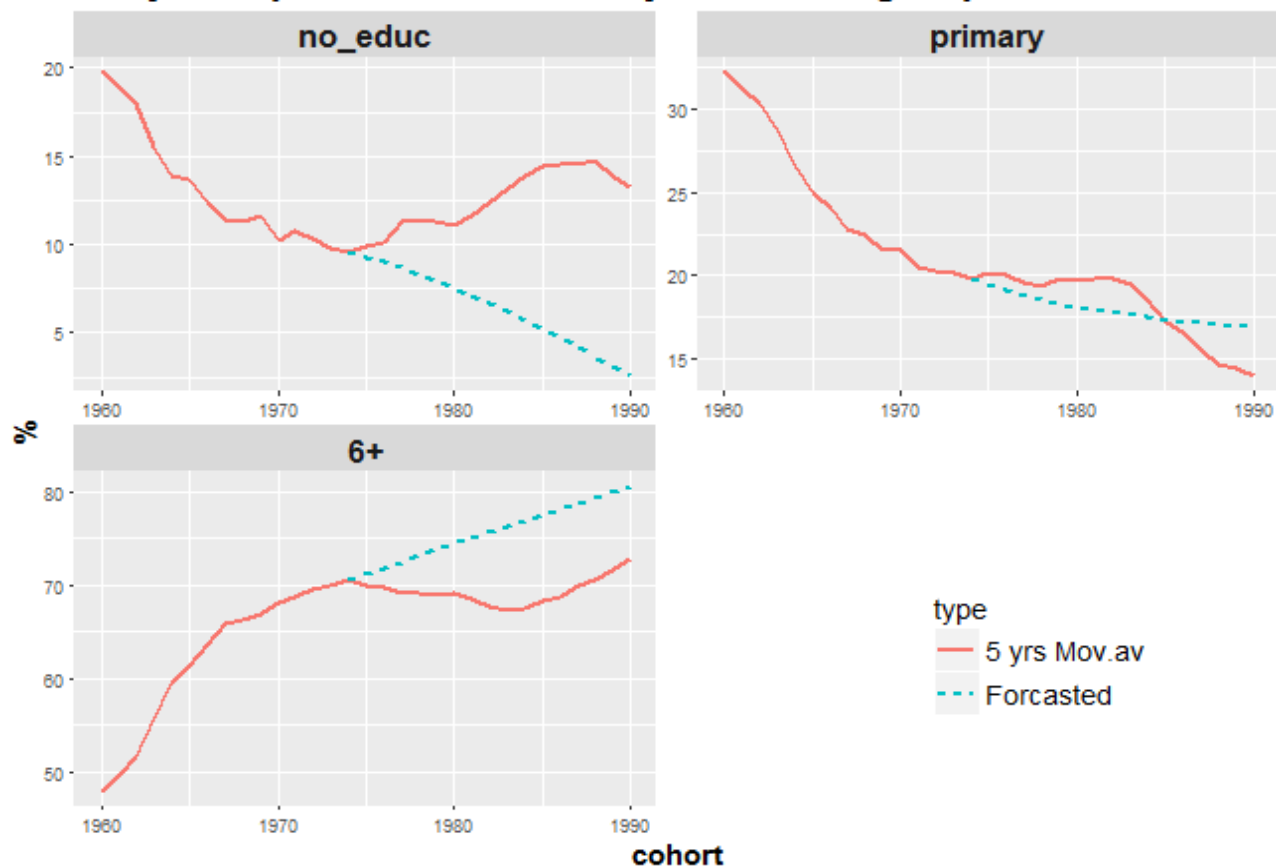
- Stalls in Africa's fertility decline are consequence of education disruptions in the 1980s

# Little Consensus on the Causes of the Stalls?

- ❑ Impact of HIV/AIDS through child Mortality  
( Westroff and Cross,2006)
  - ❑ lower priority assigned to family planning programs  
(Bongaarts, 2008)
  - ❑ Slower trends in socio economic developments  
(Shapiro and Gebreselassie, 2007)
  - ❑ The stalls are spurious (Schoumaker 2009, Machiyama 2010)
  - ❖ SAPs and Cohort Educational Discontinuity  
(Goujon et al.,2015)
- 
- Period  
Factors**

# SAP and educational Discontinuity..

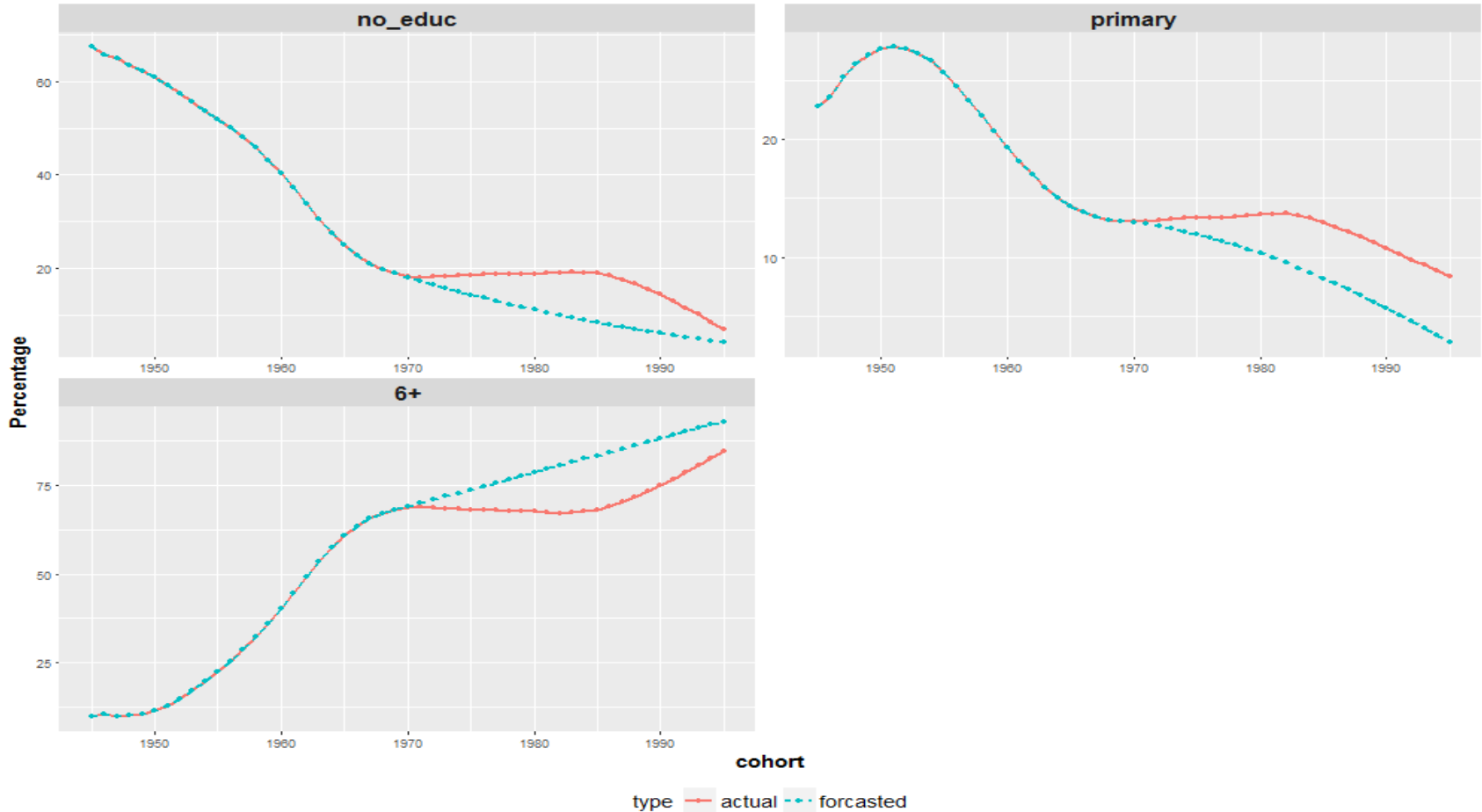
Kenya: Proportion of Women by education group



Source: Own Computation

# SAP and educational Discontinuity..

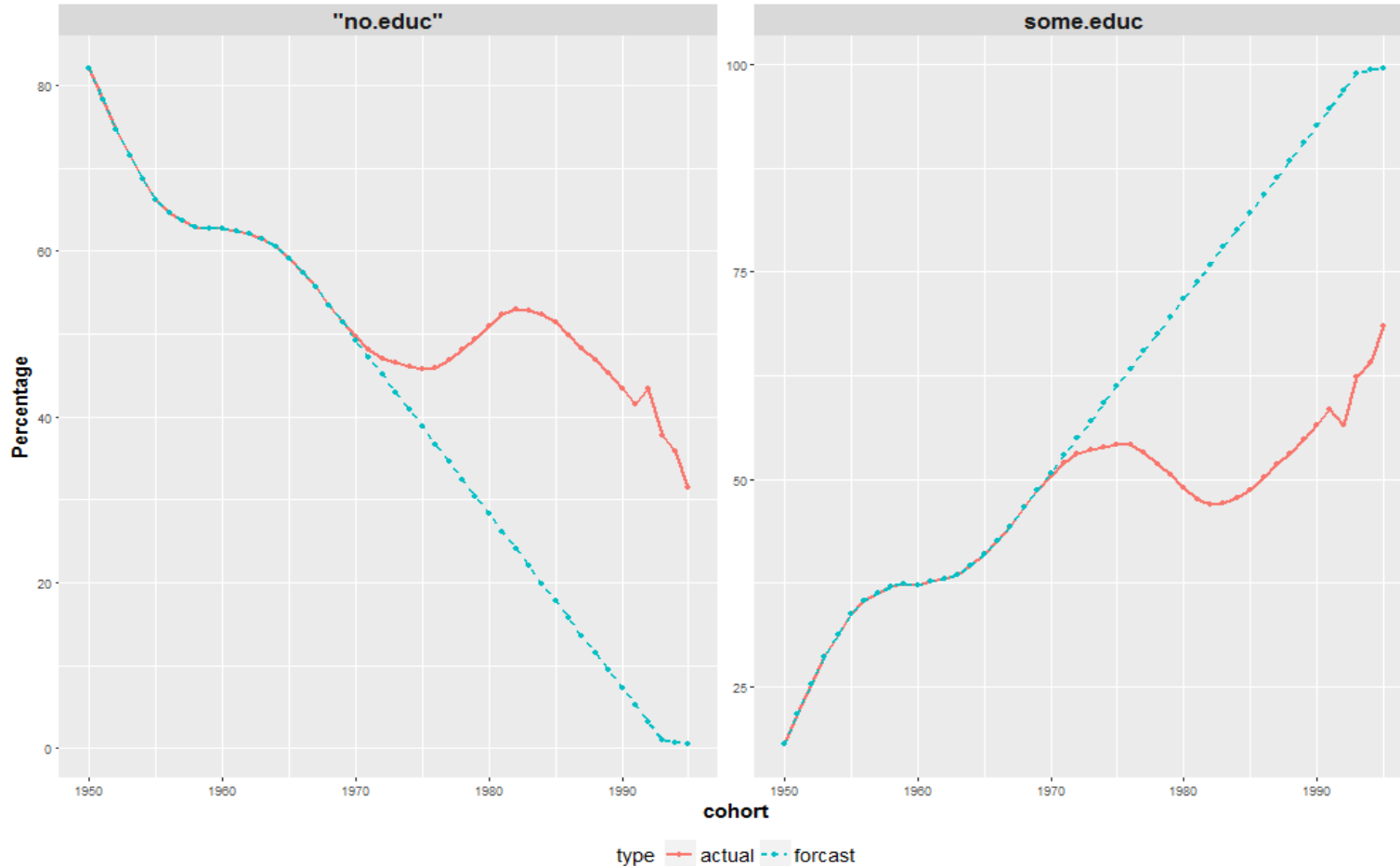
Tanzania: Proportion of Women by education group



Source: Own Computation

# SAP and educational Discontinuity..

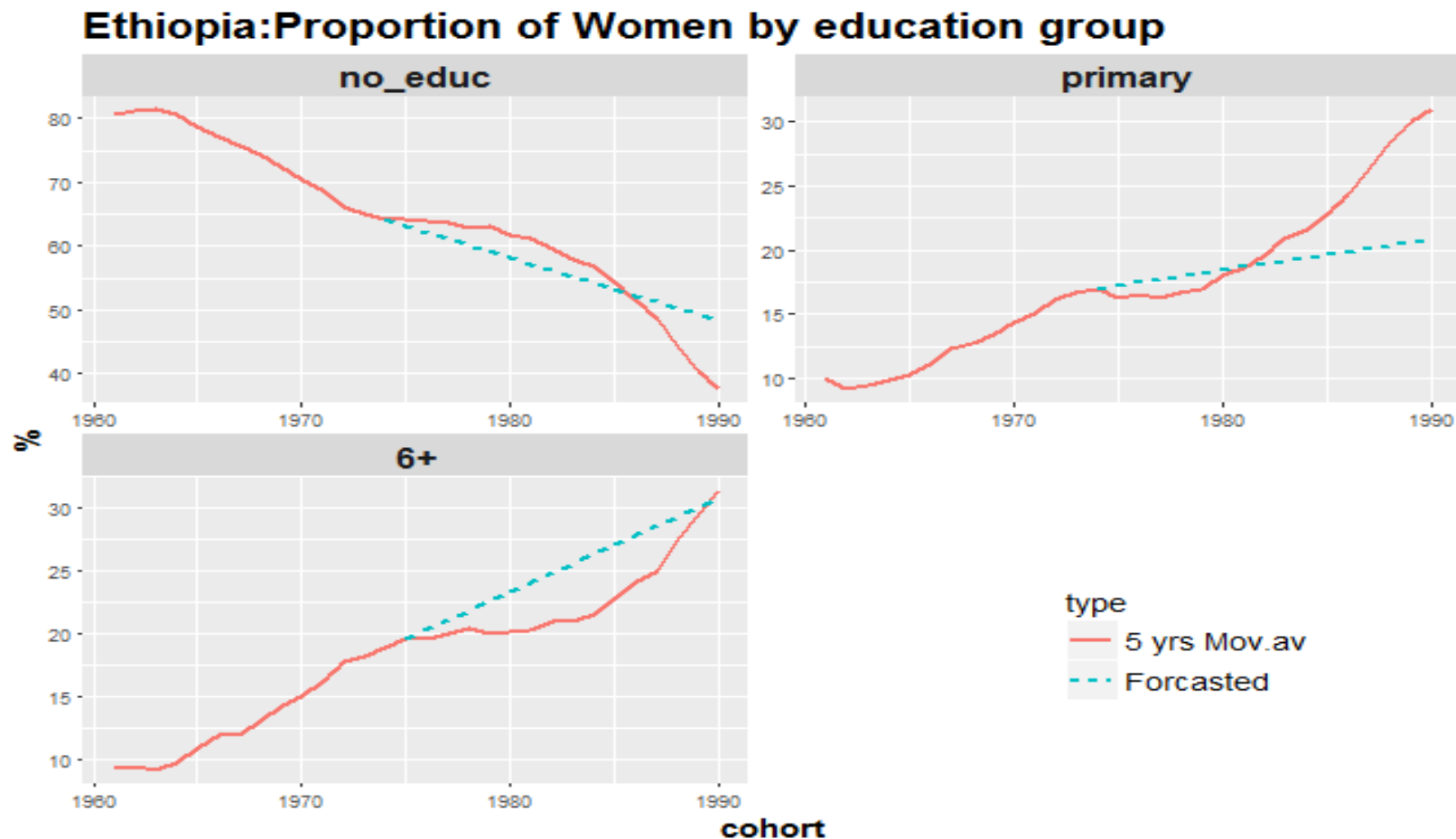
Cote D'ivoire: Proportion of Women by education group



Source: Own Computation



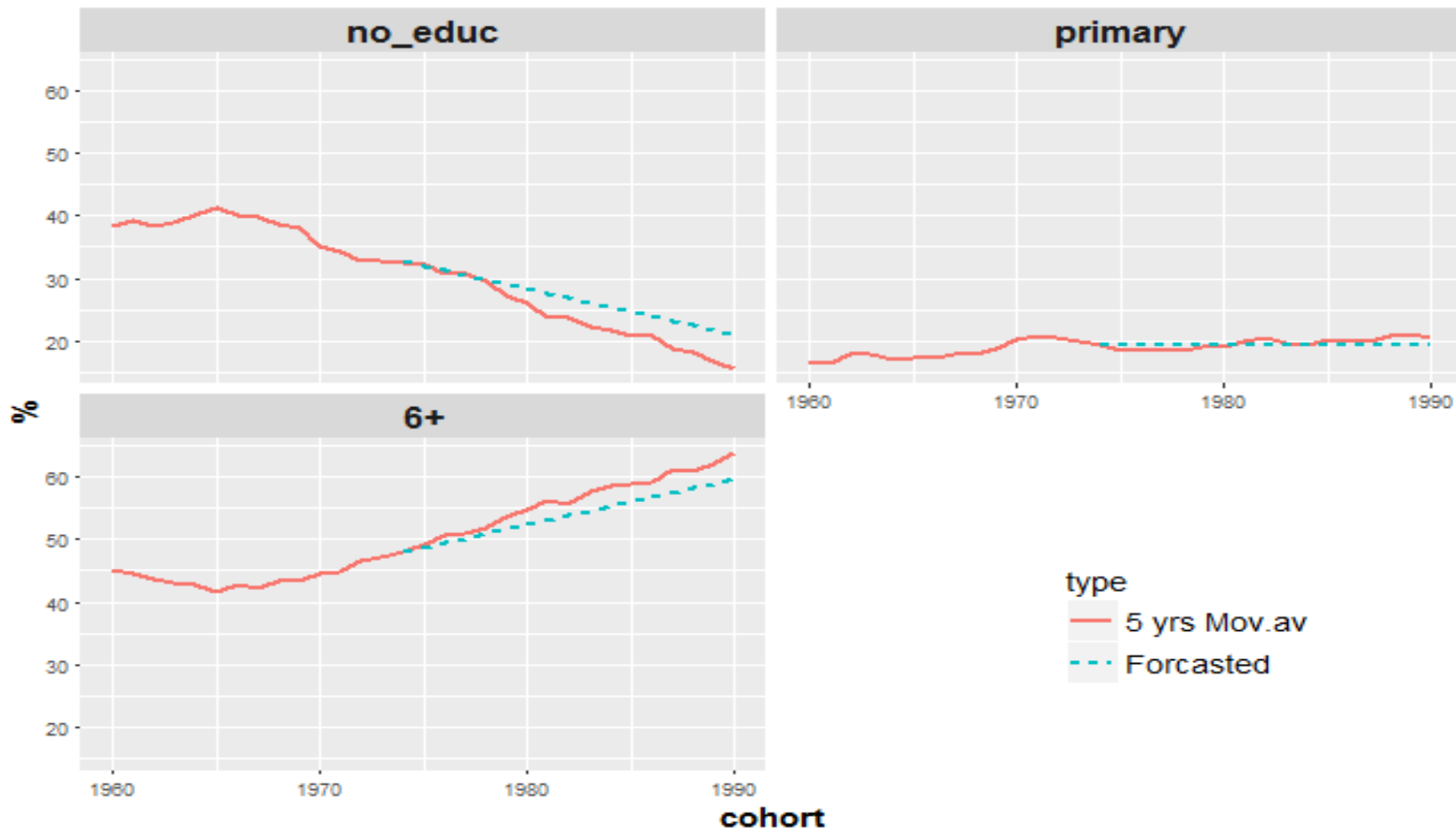
# SAP and educational Discontinuity..



Source: Own Computation

# SAP and educational Discontinuity..

## Ghana: Proportion of Women by education group



Source: Own Computation

# Data

- ❑ DHSs collected over the period 1990-2015
- ❑ 18 sub-Saharan African countries are considered

| <b>'Fertility Stalled'</b>  | <b>'Fertility Non-Stalled'</b>  |
|---|---|
| Congo, Kenya,<br>Gambia, Niger,<br>Nigeria, Tanzania,<br>Zambia and<br>Zimbabwe | Benin, Cote d'Ivoire,<br>Cameroon, Ethiopia,<br>Gabon, Ghana, Guinea,<br>Lesotho, Senegal and<br>Uganda |

- ❑ Retrospectively collected 1,831,022 births from 573,091 women are considered

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# Inter-cohort Changes in Education and Fertility

- Two Series of cohort trends were reconstructed, both by 5-year birth cohorts of women :
    - i. The proportion of women with at least some education
    - ii. Trends in age-specific fertility rates
  - These trends are matched and compared for two groups of countries: 'Fertility Stalled' and 'Fertility Non-stalled'
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# Patterns of Inter-cohort changes in educational attainment

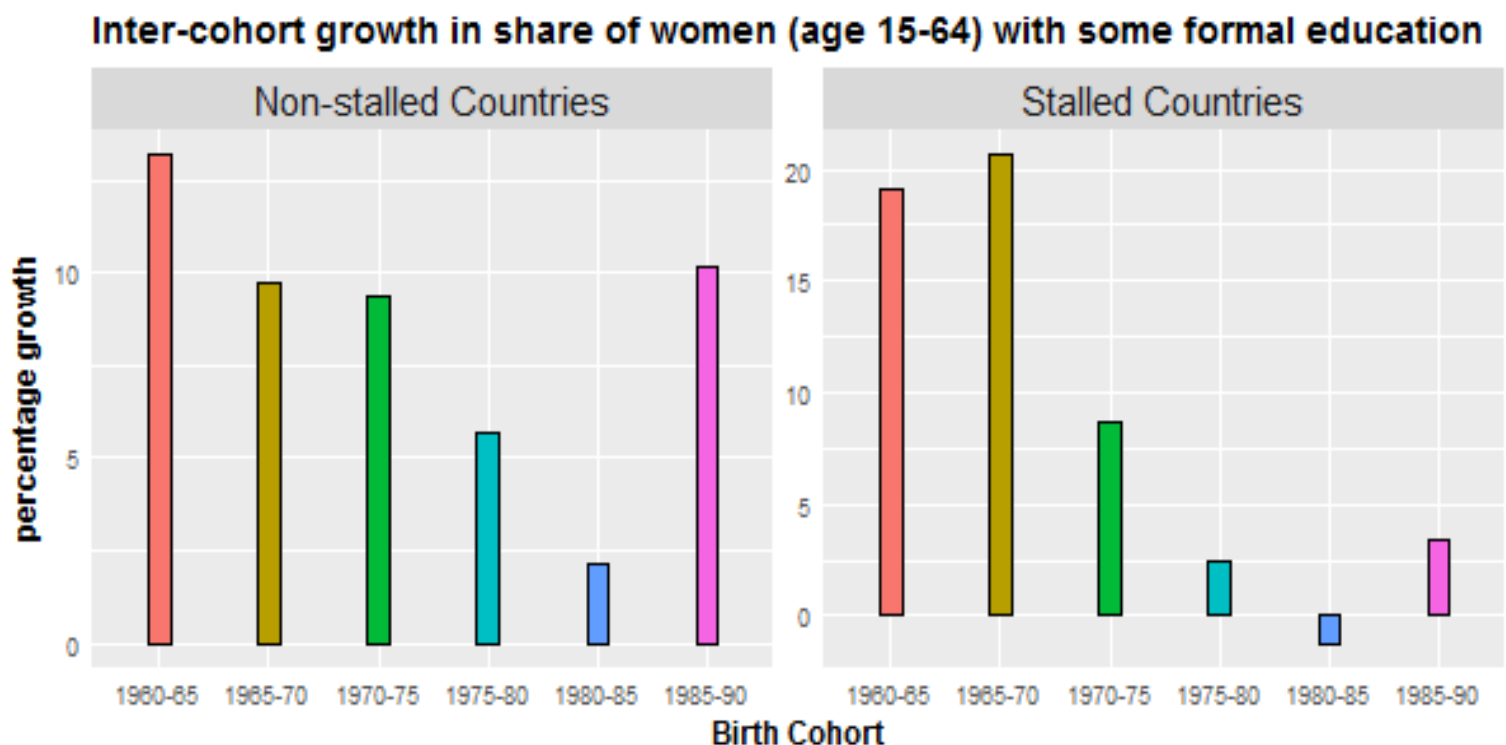


Figure 1: Inter-cohort growth rates of share women with some education by fertility stalling status of countries

# Trends in cohort ASFR per 1000 women

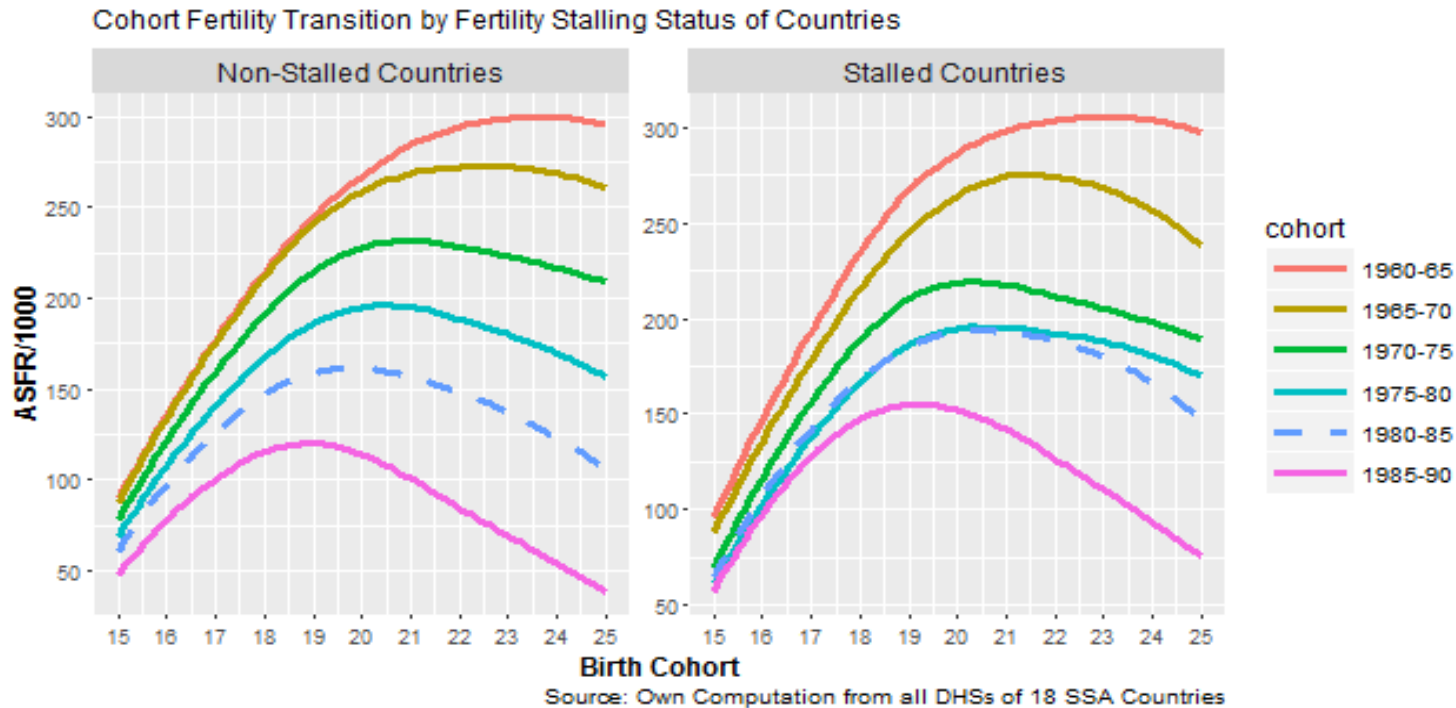


Figure 2: Age specific fertility rates per 1000 women for 5-year birth cohorts of women and fertility stalling status of countries

# Proportions of childless women by age and birth cohorts of women

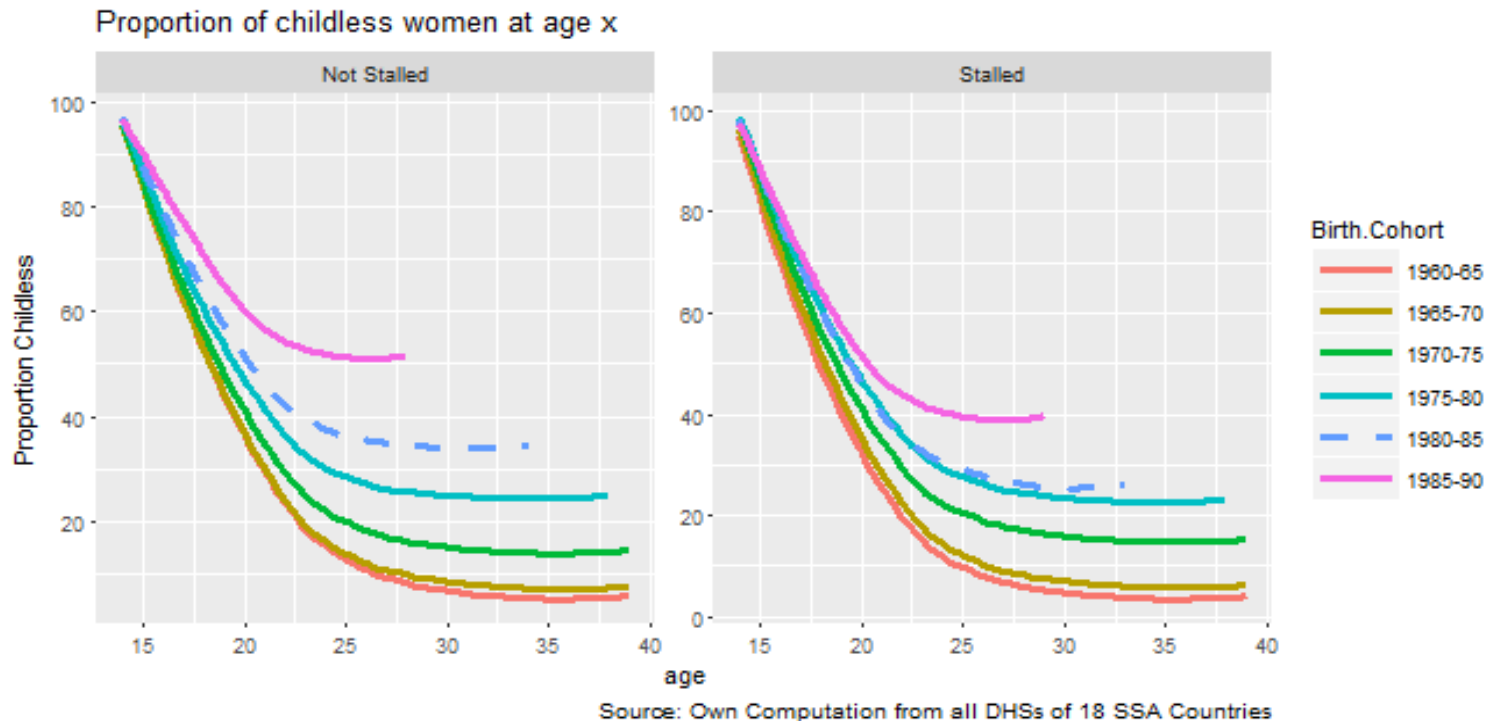


Figure 3: Proportions of childless women by age, for 5-year birth cohorts of women and fertility stalling status of countries.

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# Causality

- Why is the stall in patterns of cohort ASFR most visible on younger women(15-22)?
  - Two plausible explanations:
    - i. Transitory Cohort Effect*
    - ii. Age-selective period related shocks*
  - Exploring the relative impact of the two calls for a **Multivariate analysis**
-



# Causality

- We have fitted a mixed-effect duration model.
- The duration of interest is the time between age 12 and age at first birth
- $$\text{Logit}(h_{i,c,t}) = \log\left(\frac{\text{first birth}_{i,c,t}}{1 - \text{first birth}_{i,c,t}}\right) = \alpha(t) + \beta_1 \text{Cohort}_{c,i} + \beta_2 \text{Educ}_{c,i} + \text{GDP/capita}_{c,t-1} + \beta_4 \text{Urban}_{c,t-1} + \beta_5 \text{U5MR}_{c,t-1} + X'_i \pi + Y'_c \mu_c$$
- Dependent variable:  $h_{i,c,t}$
- Independent variable of interest: 5 years birth cohort of women.

# (cont.) Causality

## Variables

- Birth cohort
- Area of residence
- Religion
- ....

**Background Cxs**

- Education of women

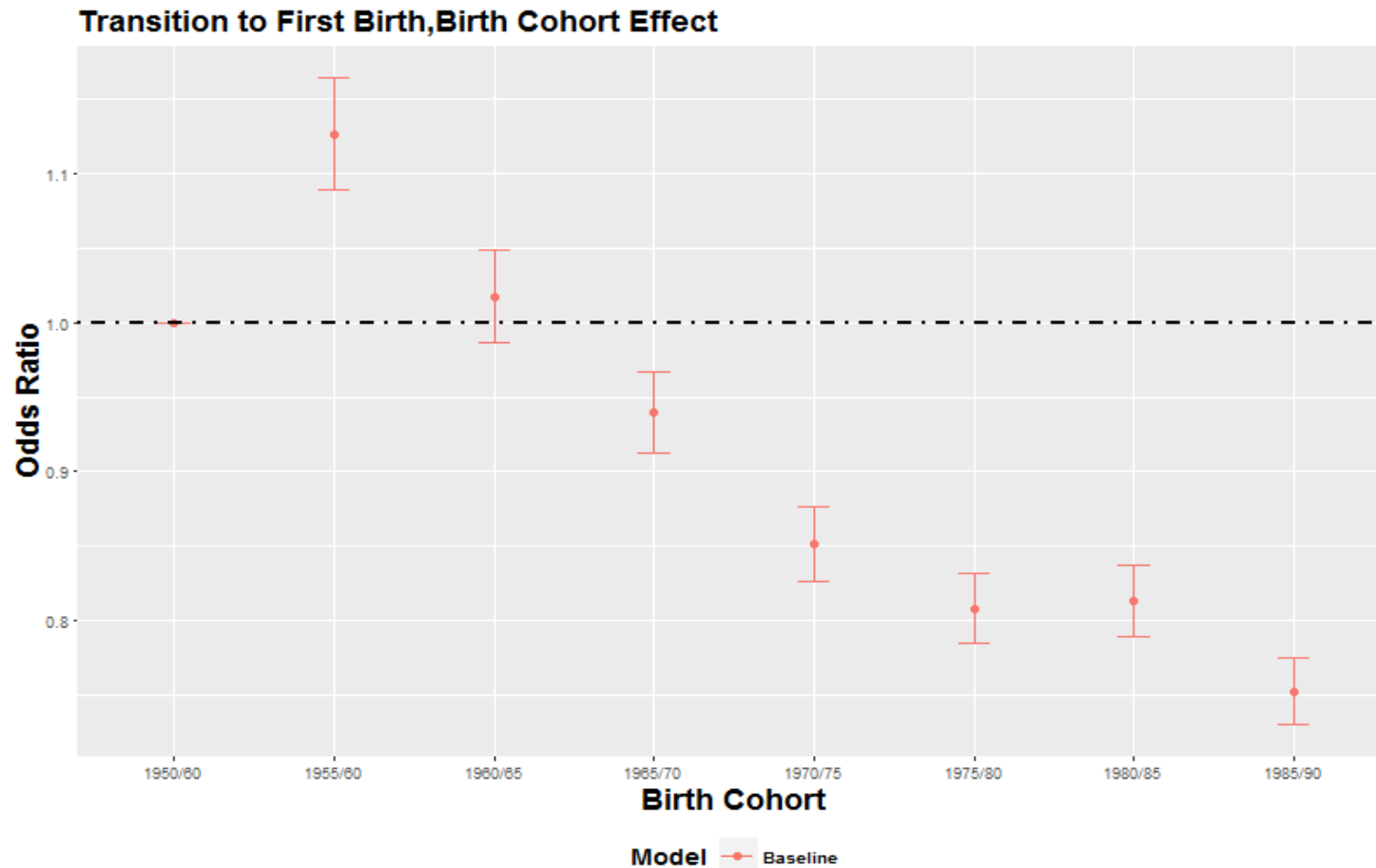
**Cohort Factor**

- $GDP/capita_{c,t-1}$
- $Urbanization_{c,t-1}$
- $U5MR_{c,t-1}$

**Period related  
macroeconomic  
shocks**

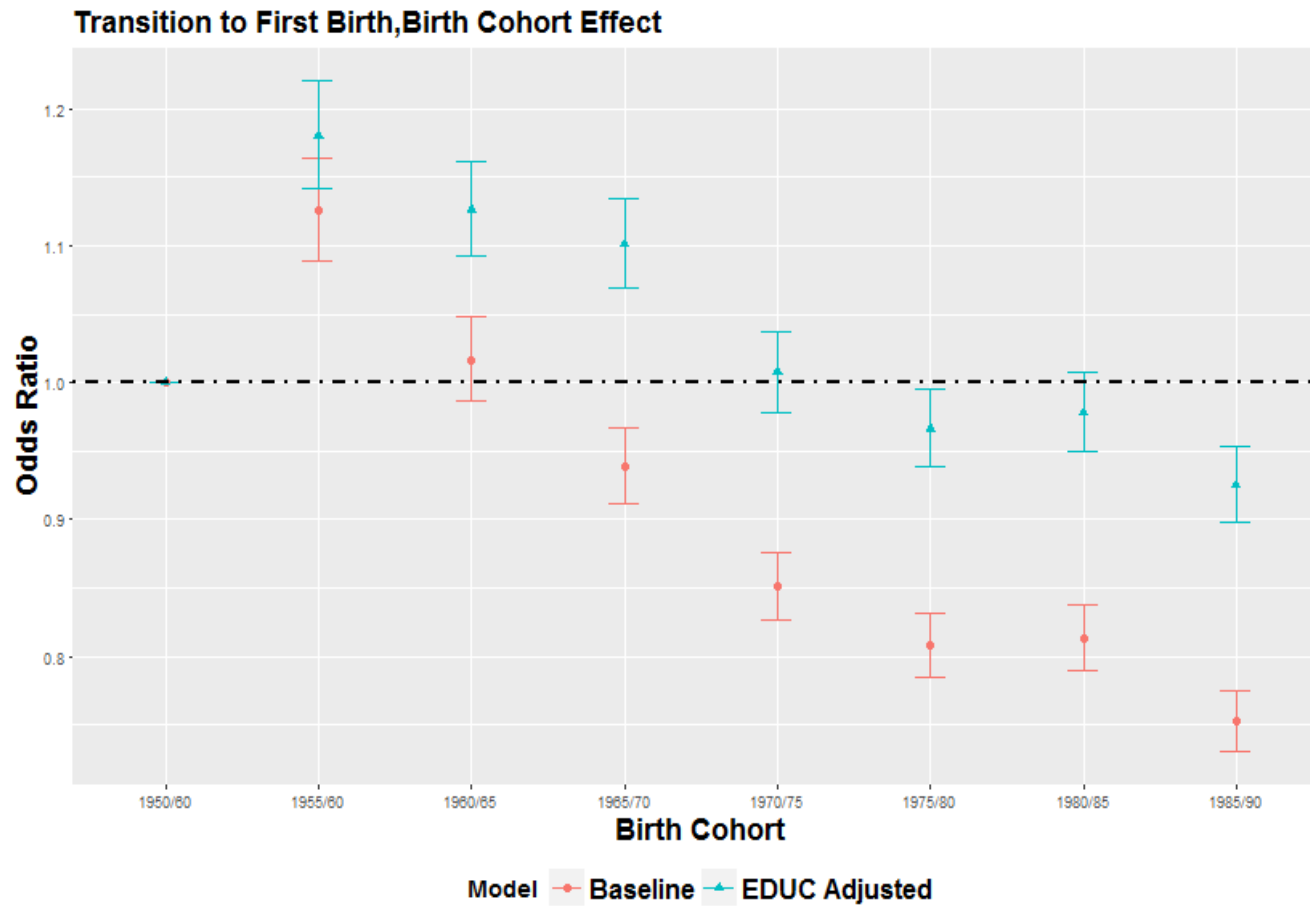
# Causality: Regression outcomes

## The Baseline Model: Effect of Birth Cohort



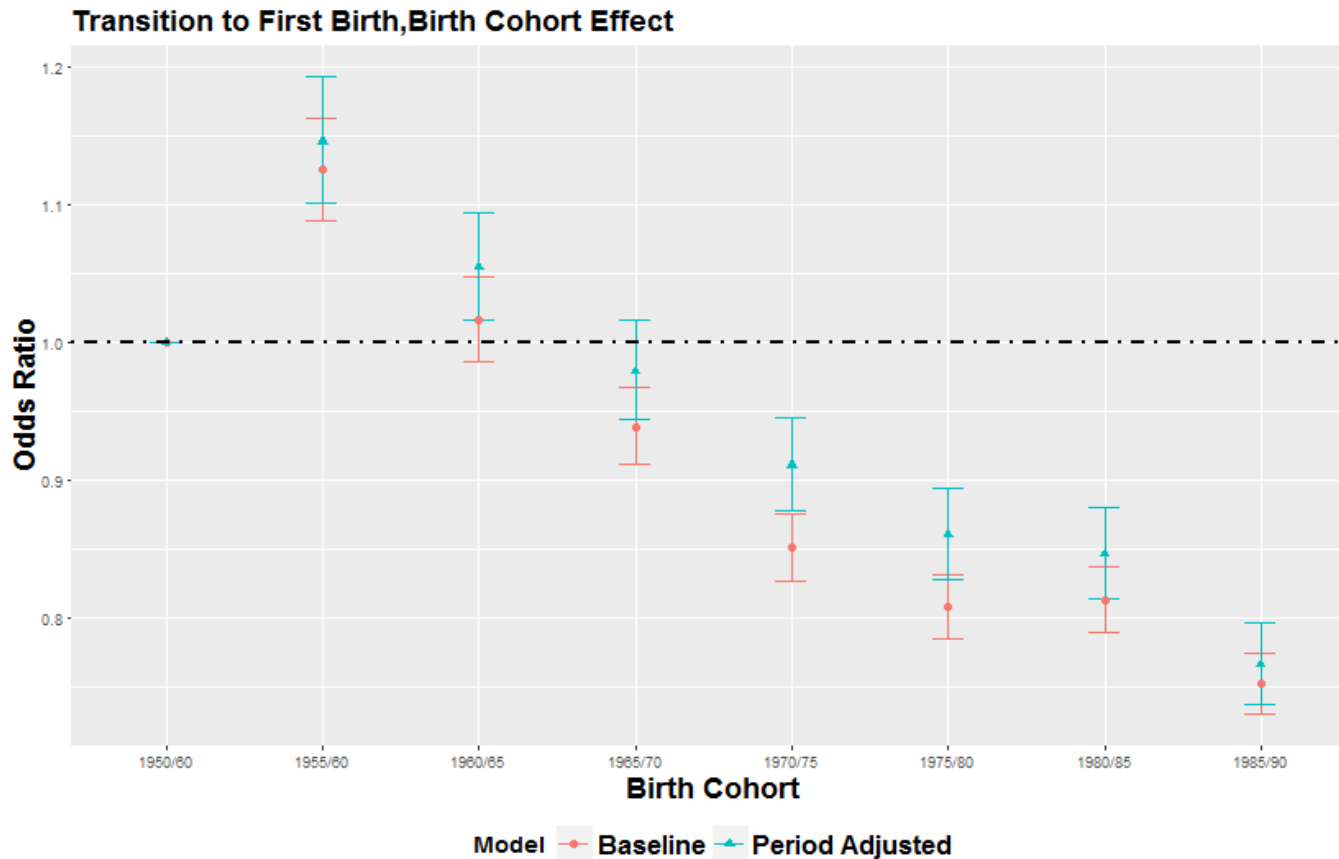
# (cont.) Causality: Regression outcomes

## The Education Adjusted Model: Effect of Birth Cohort



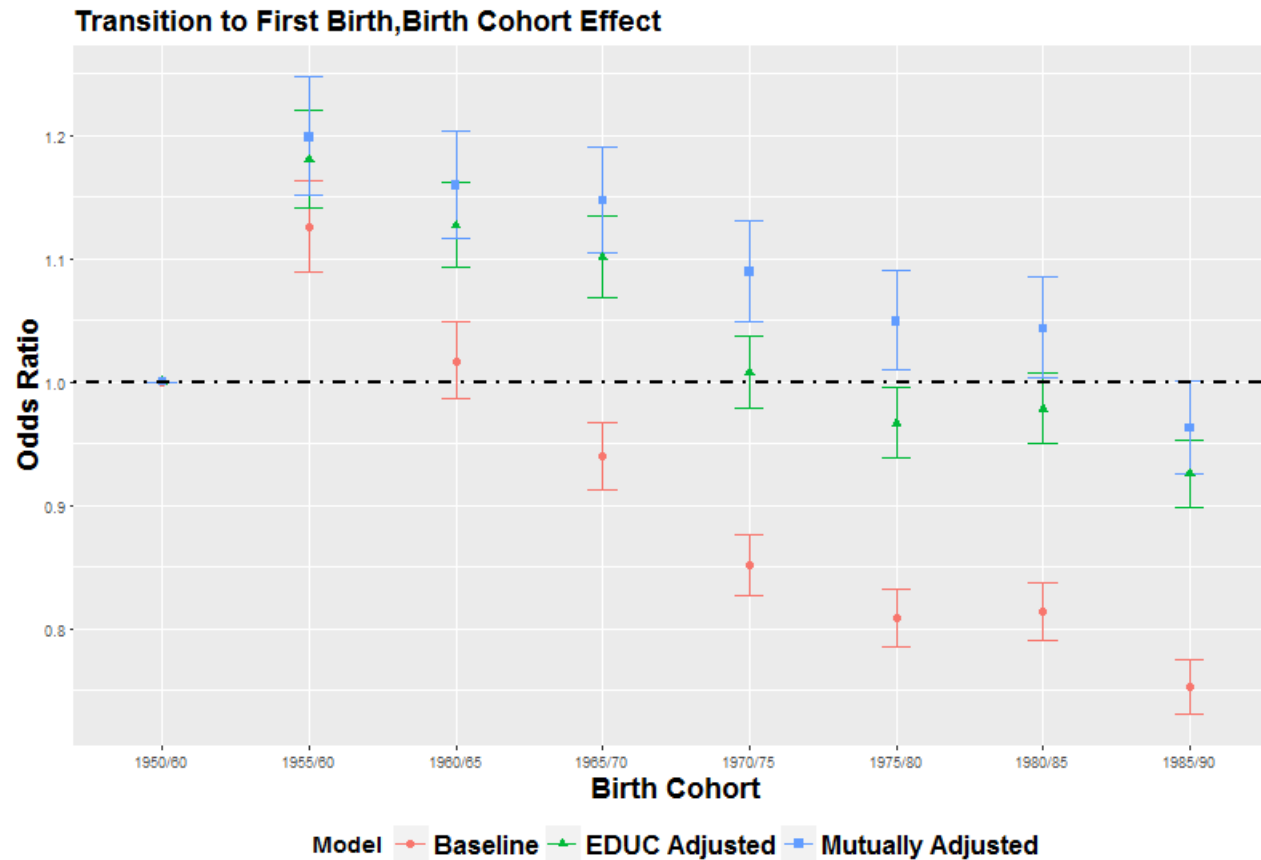
# (cont.) Causality: Regression outcomes

## The Period Adjusted Model: Effect of Birth Cohort



# (cont.) Causality: Regression outcomes

## The Main Model: Effect of Birth Cohort



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# Conclusions

- Exceptional education experience of the birth cohort 1980-85 is a driver of the observed fertility stalls
  - For the future we may expect an acceleration of the fertility decline as the subsequent better-educated cohorts of women move into the main childbearing ages
  - While the evidence for this education-fertility link at the cohort level seems to be very robust, the evidence for directly blaming the SAPs for the education stalls is less certain.
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**Thank You Very Much!!**

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