How exceptional is the pattern of fertility decline in sub-Saharan Africa?
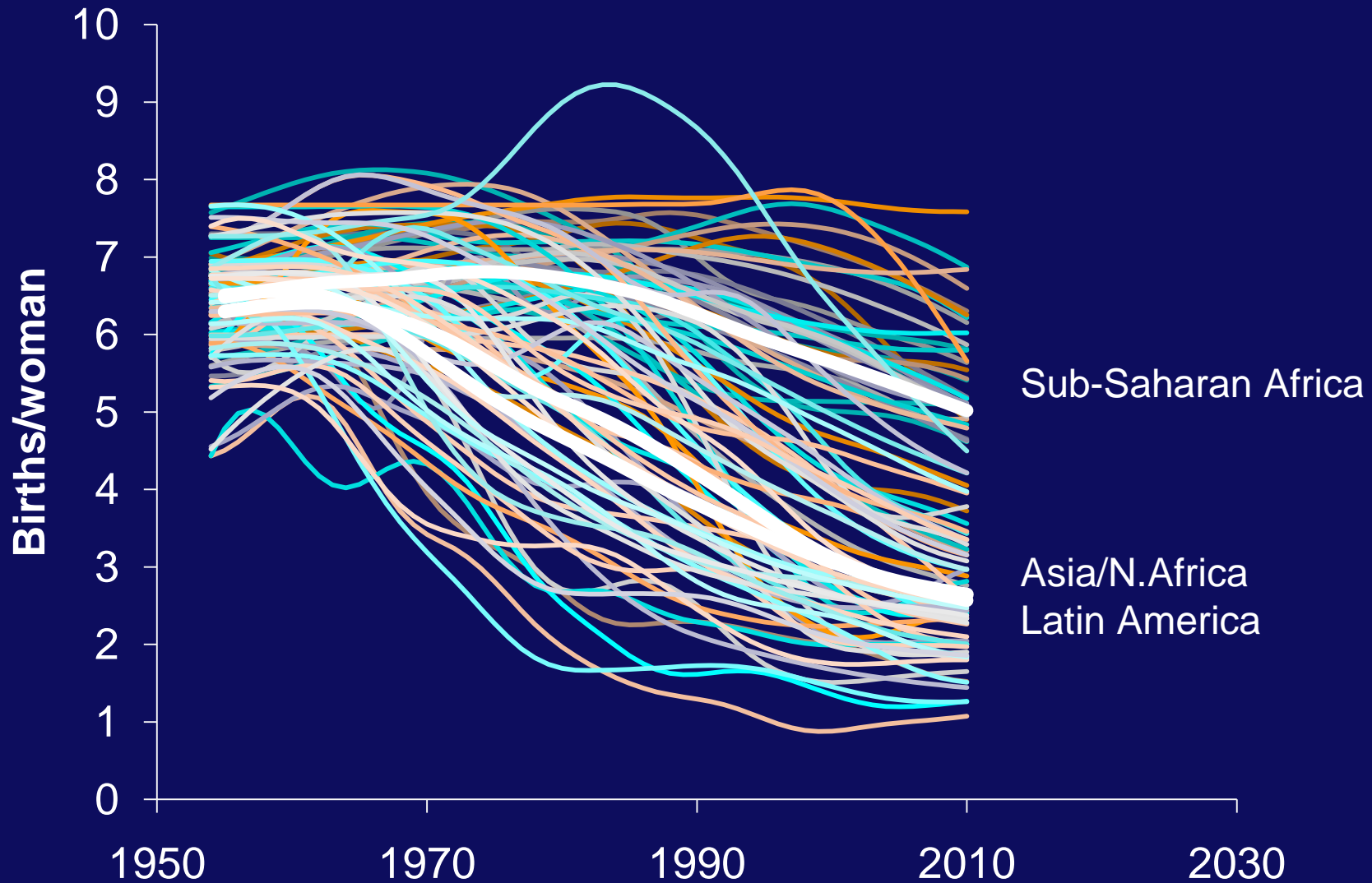
John Bongaarts

Population Council
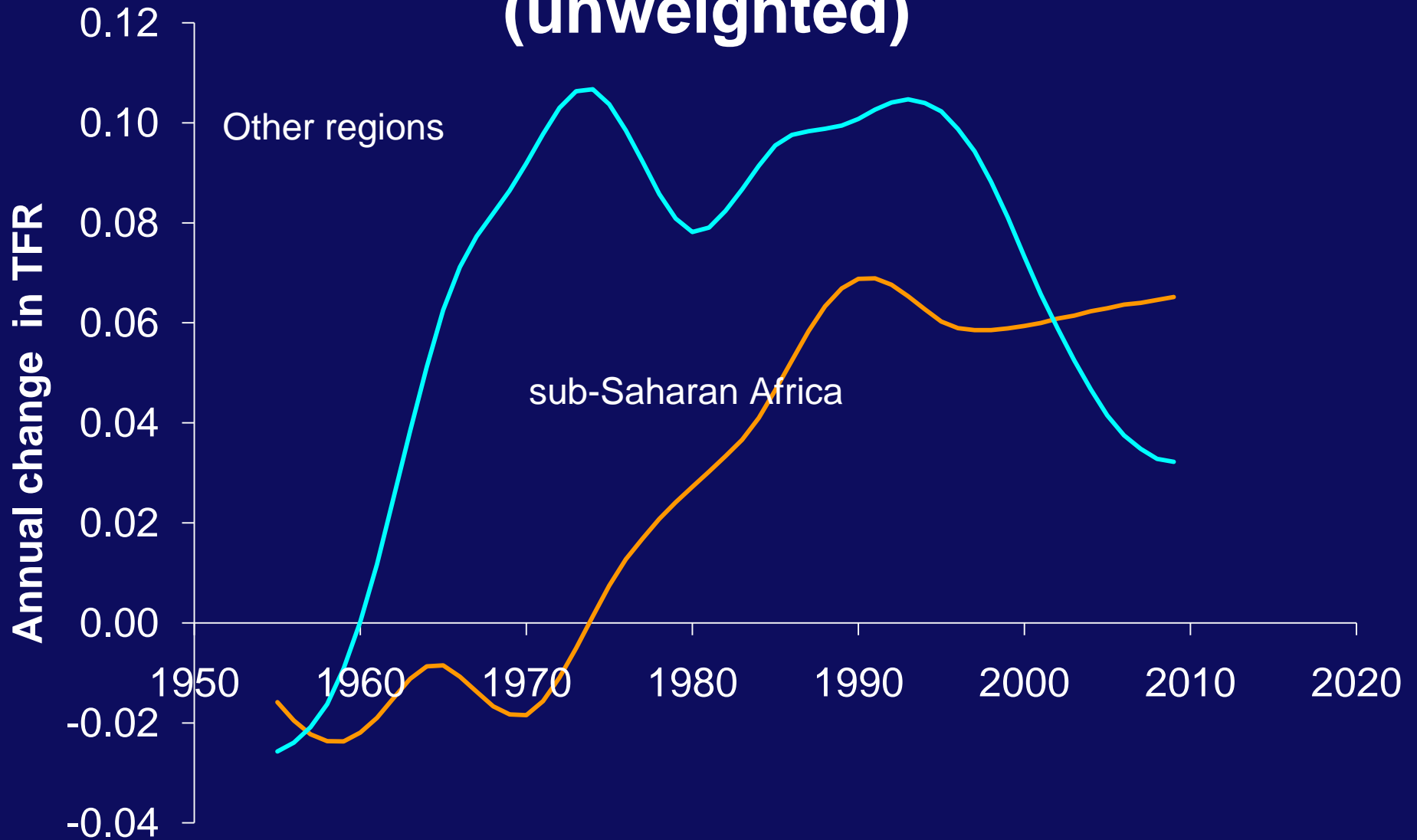
Outline

- **Background: fertility trends**

- **Transition patterns: onset and pace of decline**

- **Socio-economic determinants**

- **Policy options**

Trends in total fertility rate by country

Births/woman (y-axis: 0 to 10)

x-axis: 1950, 1970, 1990, 2010, 2030

Sub-Saharan Africa

Asia/N.Africa
Latin America

Population Council

Pace of fertility decline (unweighted)

Annual change in TFR

Other regions

sub-Saharan Africa

Population Council
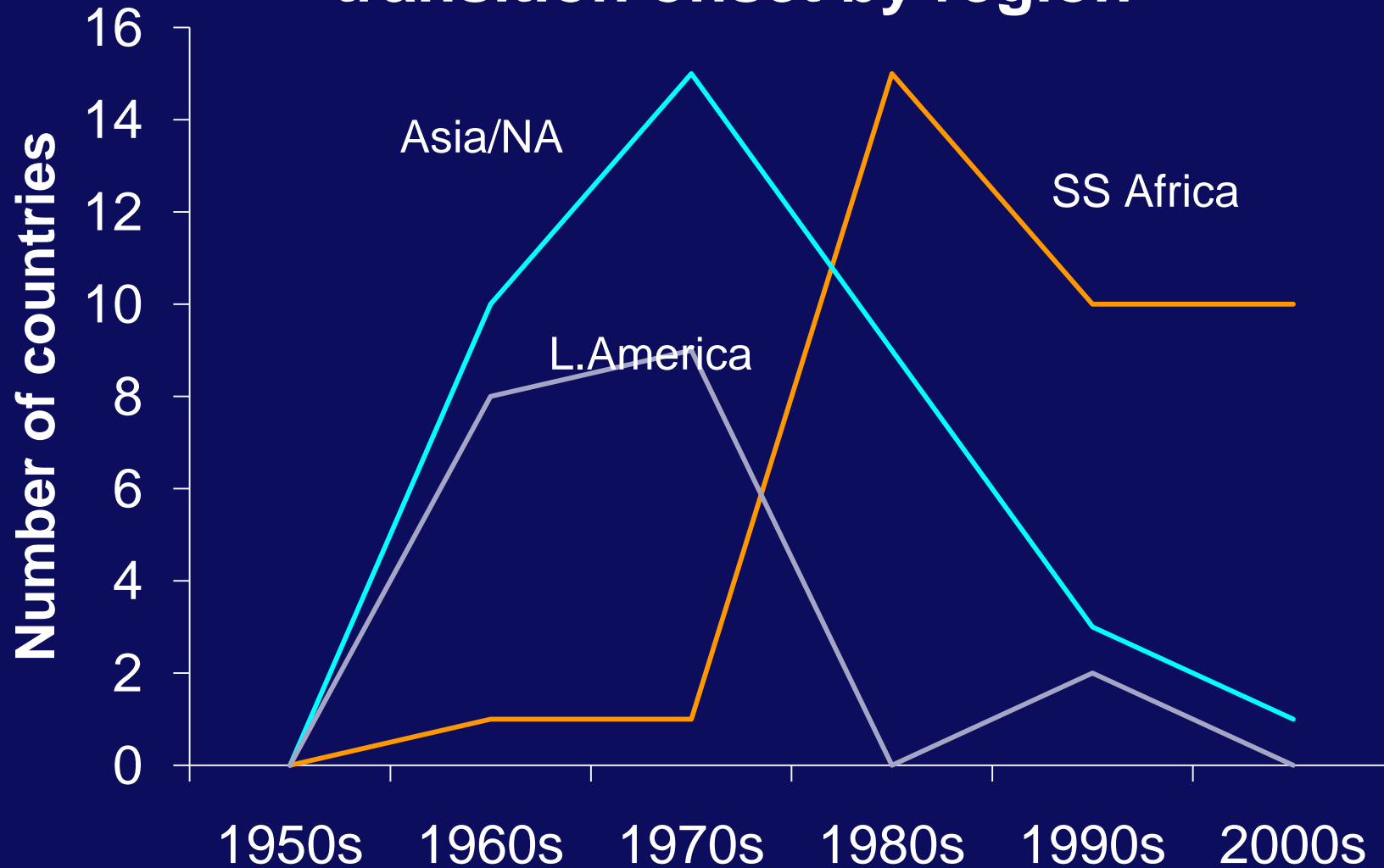
Fertility transition patterns

Fertility transition measures
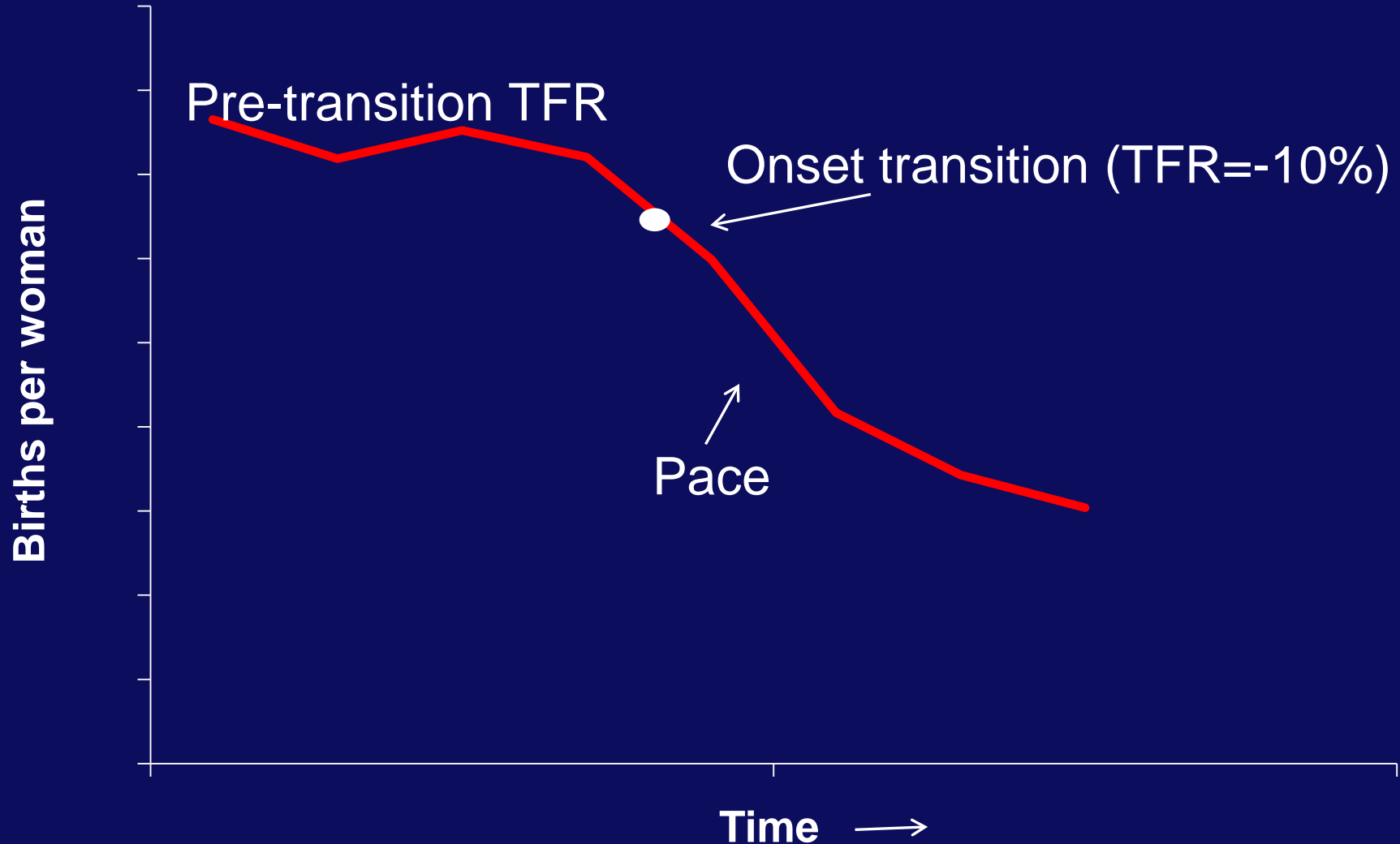
Pre-transitional fertility by region

	Sub-Saharan Africa (42)	Asia/ N.Africa (38)	Latin America (19)
TFR in 1955	6.5	6.4	6.5
Maximum TFR 1955-2010	7.1	6.7	6.6

Distribution of countries by year of transition onset by region

Sub-Saharan Africa

Relative fertility

Proportion of maximum

1.0 — 0.8 — 0.6 — 0.4 — 0.2 — 0.0

0   10   20

Year since onset

Other regions

Relative fertility

Proportion of maximum

1.0 — 0.8 — 0.6 — 0.4 — 0.2 — 0.0

-5   5   15   25

Years since onset

Population Council
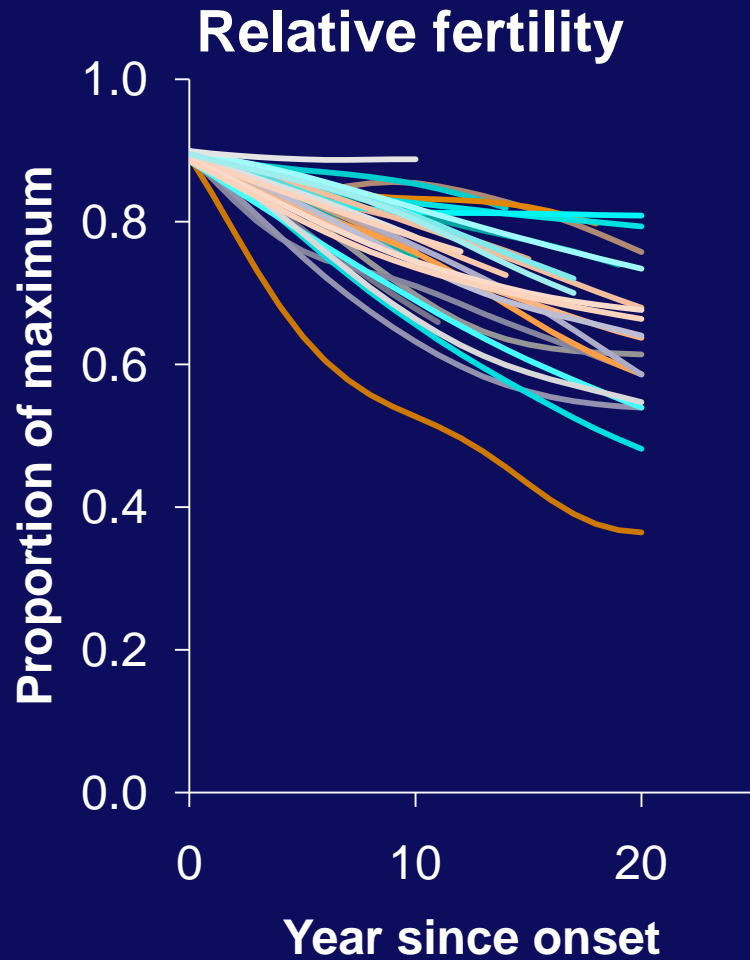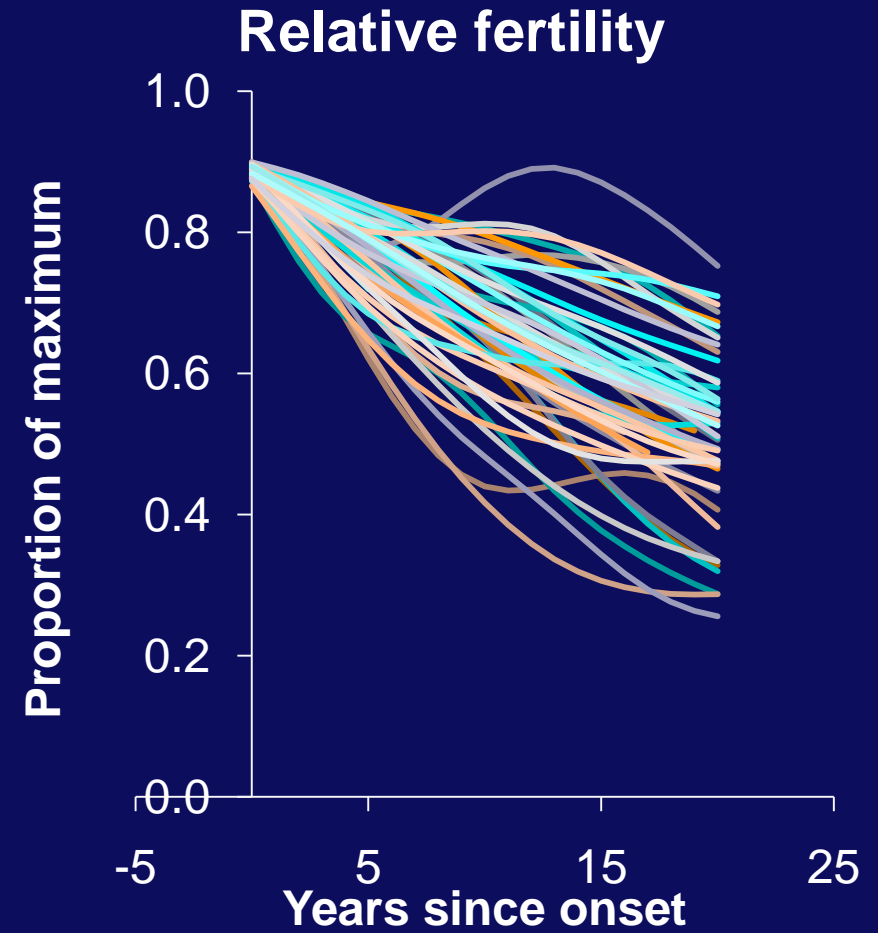
Average per cent decline in fertility from maximum

	Year since onset of transition		
	0	10	20
Sub-Saharan Africa	10	26	37
Other regions	10	31	48

a. Includes only countries observed for 20 years after onset

Sub-Saharan Africa is different:

- **Pre-transition: slightly higher TFR**

- **Onset: Two decades later than in other regions**

- **Pace: Slower**

Effects of socio-economic determinants:

- Probability of a newborn surviving to age 5

- Years of schooling among women aged 25 to 35
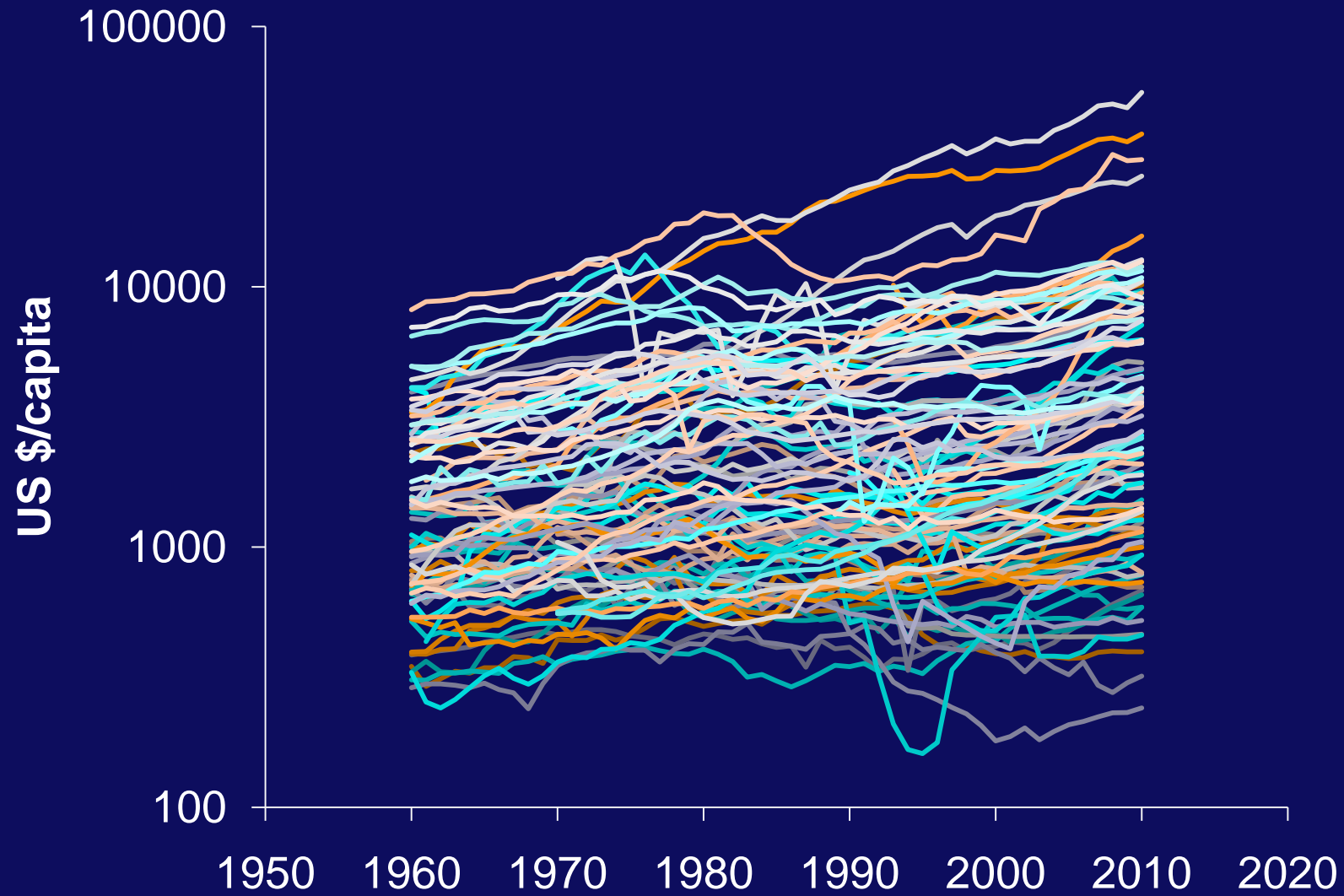
- GDP per capita, PPP 2005 $US

Effects of socioeconomic variables on the TFR in 2010

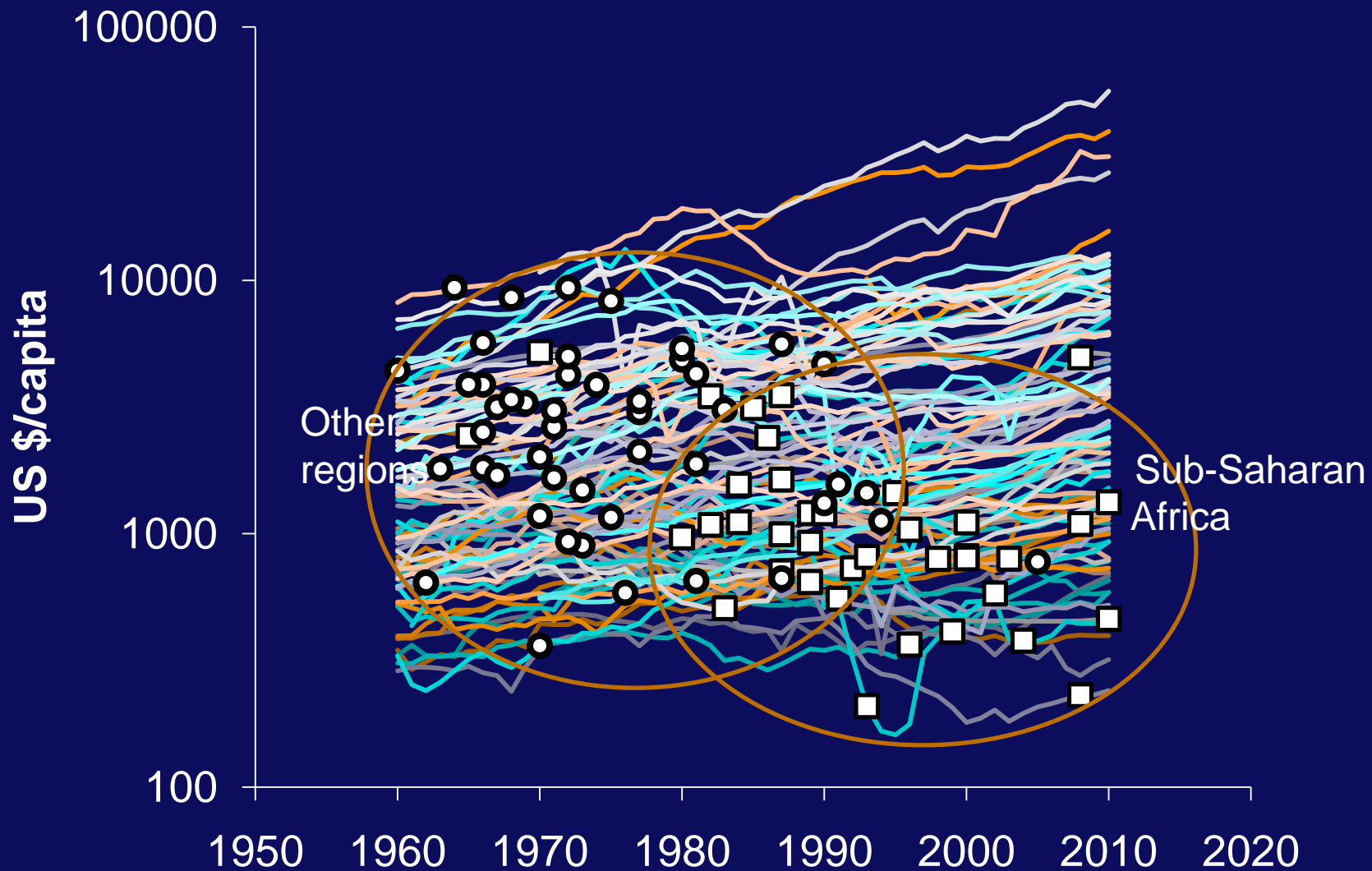| Variable	Effect	(SE)	p-value
Child survival (%)	-0.149	(0.033)	0.000
Schooling (years)	-0.0857	(0.0295)	0.005
GDP per cap. (PPP $)	-0.287	(0.0969)	0.004
Sub-Saharan Africa	0.529	(0.229)	0.024
Intercept	20.2	(2.88)	0.000
No. of obs.	94		
R^2	0.84		

Pre-transition regression:

- No effects of socio-economic variables

- Significant dummy variable for sub-Saharan Africa (+0.32)

Trends in GDP/cap

Trends in GDP/cap and year of transition onset

Other regions

Sub-Saharan Africa

US $/capita

100000

10000

1000

100

1950 1960 1970 1980 1990 2000 2010 2020

Effects of socioeconomic variables at onset on the year of transition onset (bi-variate OLS)

Variable	Effect	(SE)	p-value
Child survival (%)	-0.77	(0.26)	0.003
Schooling (years)	-1.80	(0.87)	0.043
GDP per capita (log)	-18.12	(3.12)	0.000

Averages for socioeconomic indicators at onset

	Onset year	Percent survival to age 5	Years of schooling women aged 25 to 35	GDP per capita
Sub-Saharan Africa	1992	84.5	3.0	1359
Other regions	1975	87.7	3.4	3119

Pace during first decade of the transition

	TFR	Child survival %	Years schooling	GDP per capita $
Sub-Saharan Africa	-0.96	2.9	1.2	149
Other regions	-1.47	3.8	1.6	513

Regressions of PACE of socio-economic variables on PACE of TFR

- No significant effect of survival and GDP/cap

- Significant effect for years of schooling and dummy for SSAfrica

Effects of LEVEL of socioeconomic variables on TFR pace in the first decade of the transition.

Variable	Effect	(SE)	p-value
Child survival (%)	-0.086	(0.014)	0.000
Schooling (years)	-0.072	(0.032)	0.029
GDP per capita (log)	-0.605	(0.180)	0.003

Sub-Saharan Africa is different:

- **Pre-transition: slightly higher**

- **Onset: Late in time due to later development But early relative to development level**

- **Pace: Slower due to early onset and slower rate of development. Pace is faster in first decade after onset than in second decade**

Policy options:

- **Family planning programs to reduce unplanned pregnancies**

- **Investments in human capital (e.g. girls education)**

Rwanda: Trends in fertility and contraceptive use