

Proximate determinants of fertility in sub-Saharan Africa and their possible use in fertility projection



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The fertility transition in sub-Saharan Africa is late, slow and diverse

Four Types of fertility transition can be indentified looking at 1975-80/2005-2010 TFRs

1 – Early transition,

countries with 2005-2010 TFR <3 children per woman

2 - Recent transition, well in progress,

countries with 2005-2010 TFR around 3-4 children per woman

3 - Slow and irregular transition,


countries with 2005-2010 TFR close to 5 children per woman.


4 -Very slow or incipient transition

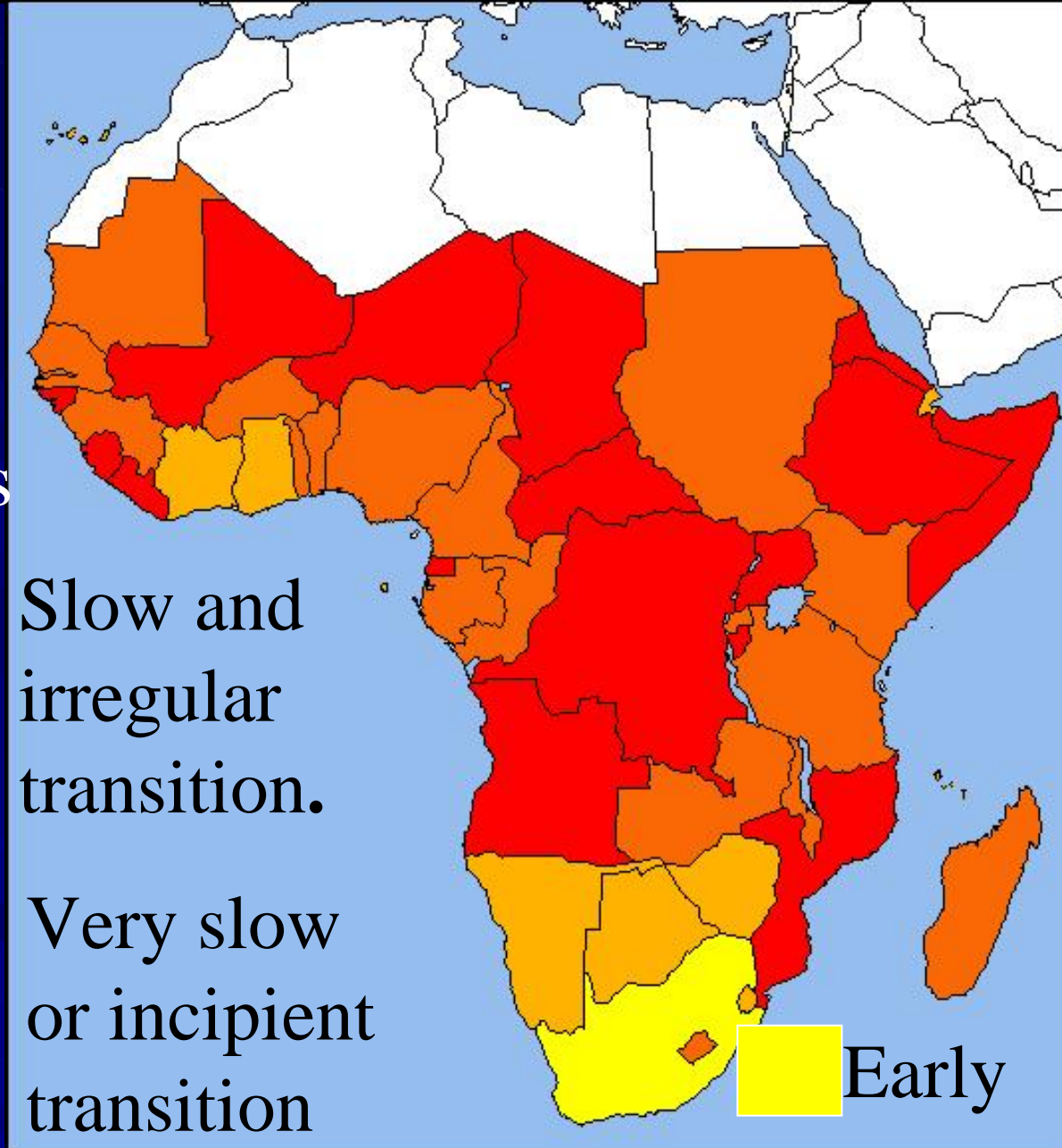
countries with 2005-2010 TFR around 5-6 children per woman

Fertility transitions sub-Saharan Africa

 Recent transition, in progress

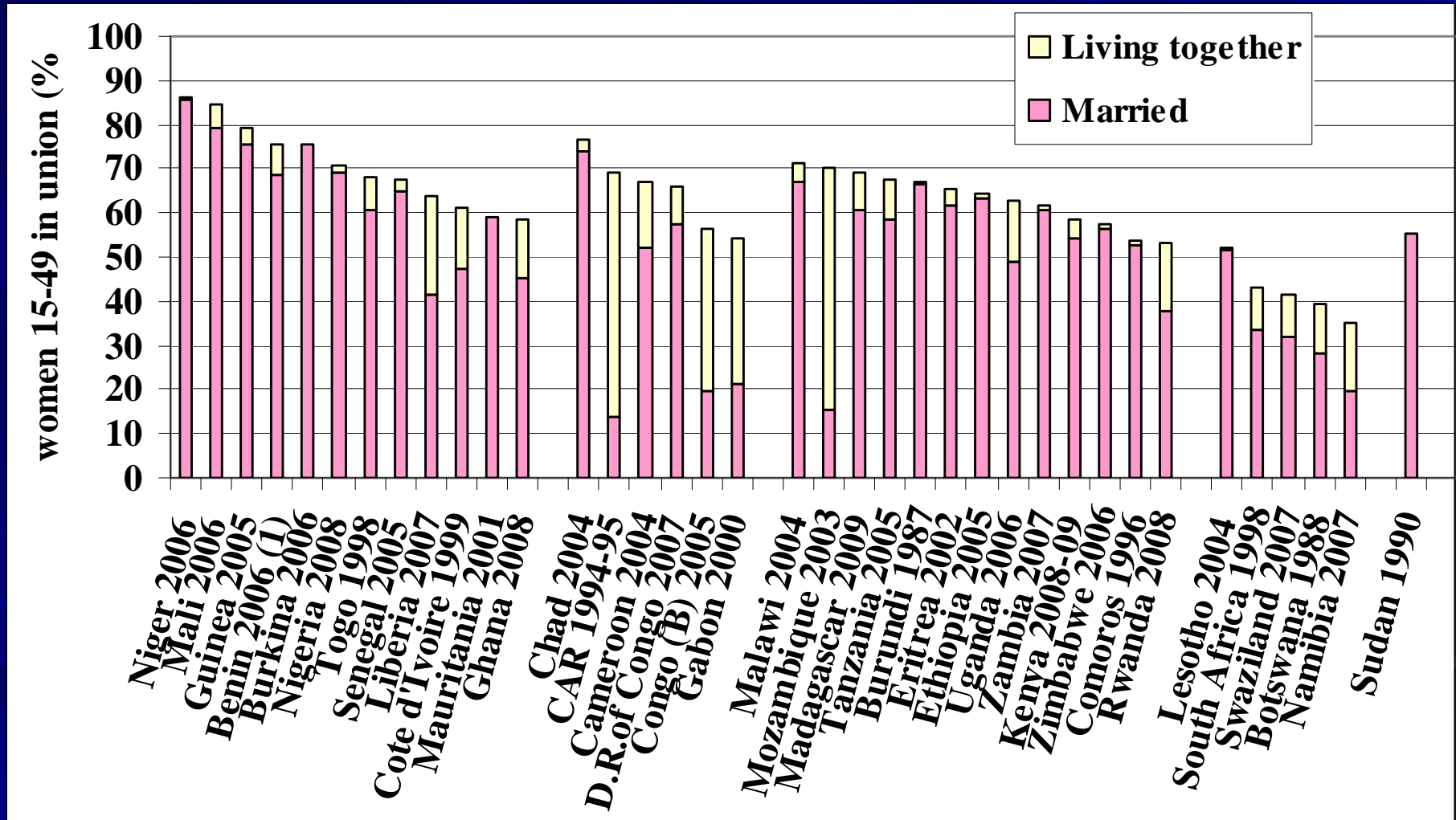
 Slow and irregular transition.

 Very slow or incipient transition



 Early

The Proximate Determinants: Percentage of women in union



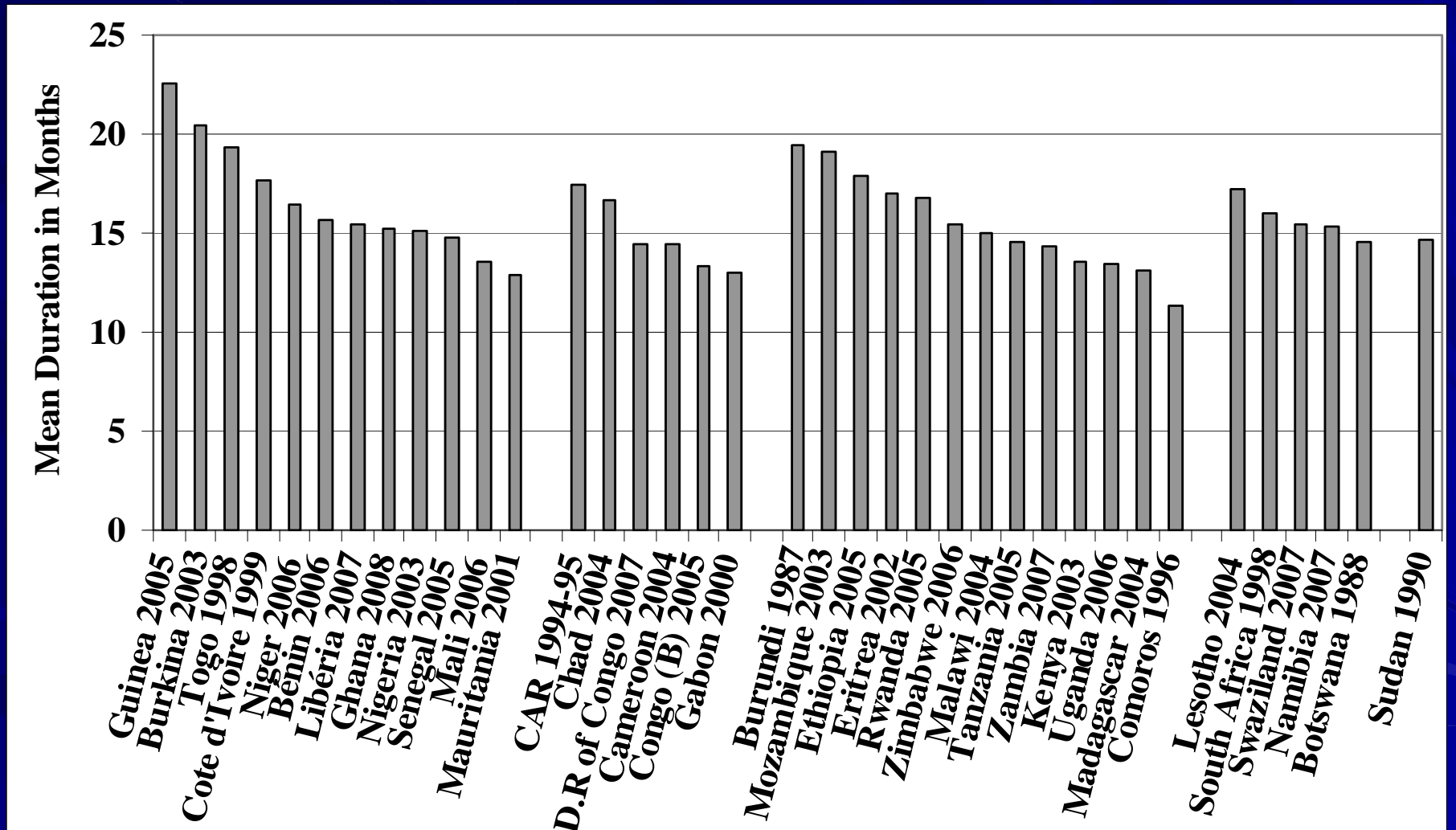
Western Africa

Middle Africa

Eastern Africa

Southern Africa

The Proximate Determinants: Mean duration of PP Insusceptibility



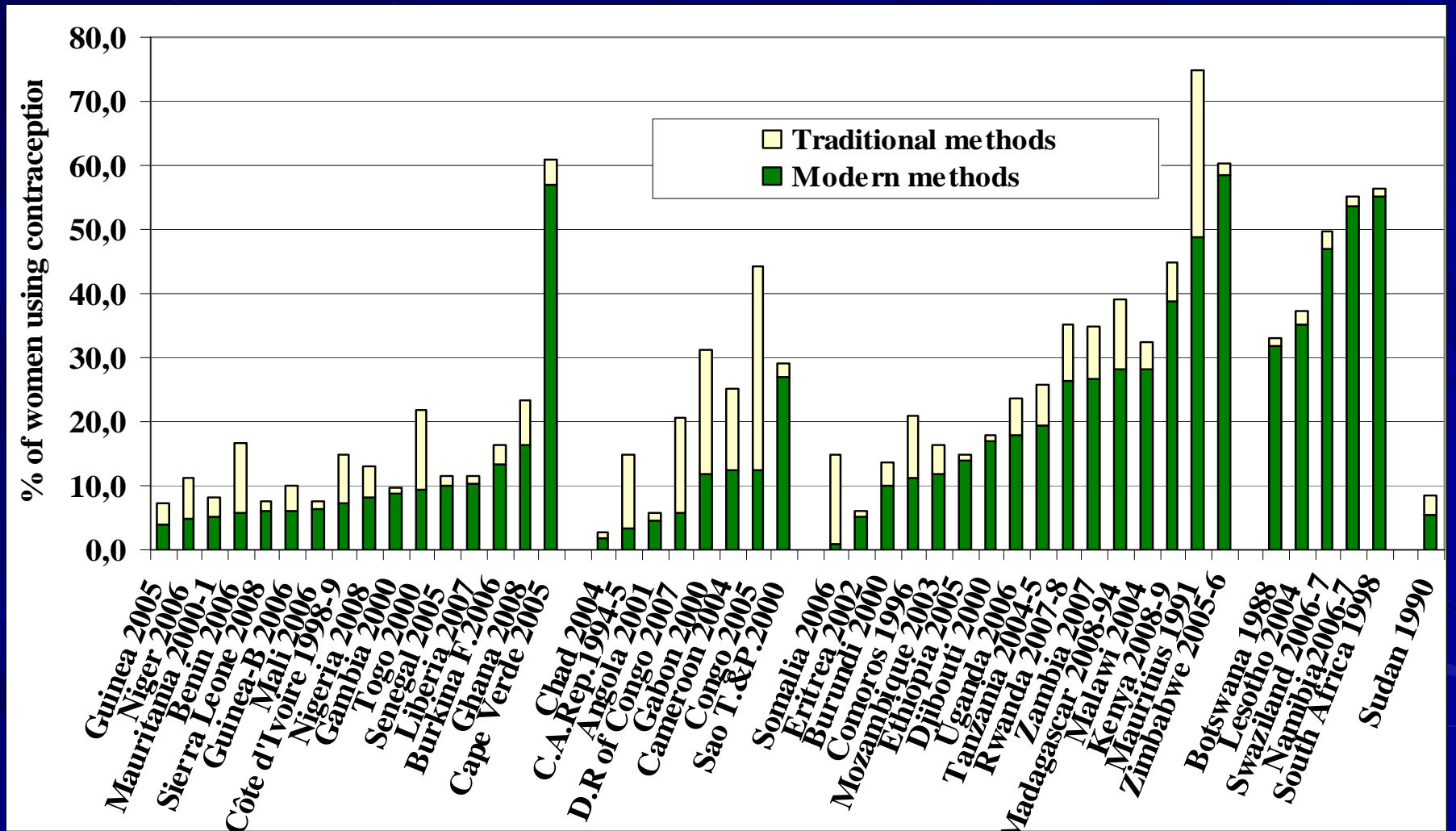
Western Africa

Middle Africa

Eastern Africa

Southern Africa

The Proximate Determinants: Contraceptive Prevalence (Mama excluded)



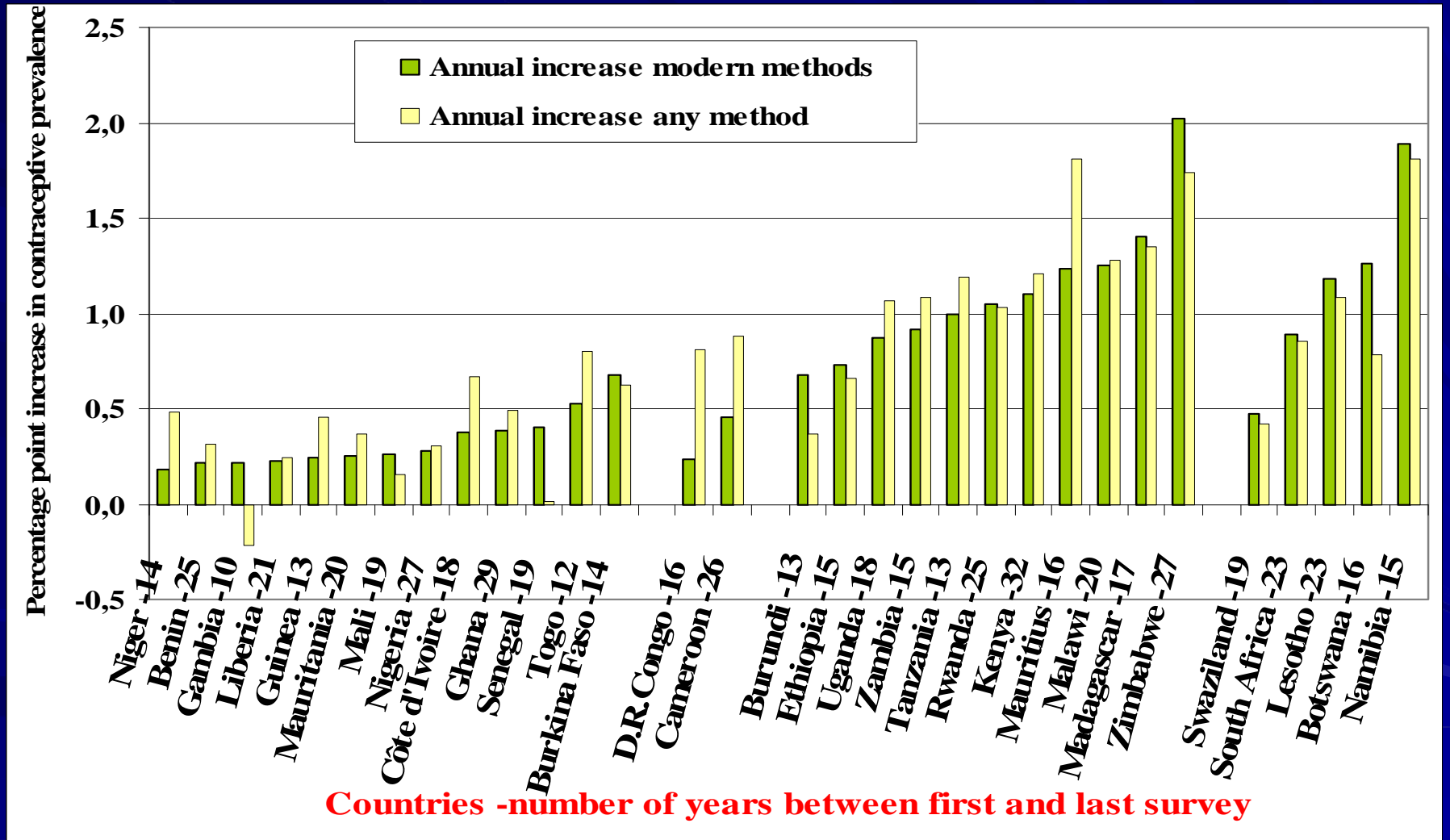
Western Africa

Middle Africa

Eastern Africa

Southern Africa

Increase in Contraceptive Prevalence: in percentage point per year (Mama excluded)



Western Africa

MiddleAfrica

Eastern Africa

Southern Africa

Decrease in Percentage of women in union (countries with at least 3 DHS)

	<i>Percentage point per year difference between</i>				
Country	<i>DHS 2 and</i>	<i>DHS 3 and</i>	<i>DHS 4 and</i>	<i>DHS 5 and</i>	<i>The first &</i>
	<i>DHS 1</i>	<i>DHS 2</i>	<i>DHS 3</i>	<i>DHS 4</i>	<i>last survey</i>
WESTERN AFRICA & CAMEROON					
Bénin	-0,6	0,4			-0,1
Burkina	-0,6	-0,7	-0,7		-0,6
Ghana	0,0	-1,1	-0,5	-0,8	-0,6
Mali	-0,9	-0,2	0,3		-0,4
Niger	-0,2	0,2			0,0
Nigeria	-0,9	0,0	-0,2		-0,4
Senegal	-0,8	-0,7	-0,1		-0,5
Cameroon	-1,0	0,0			-0,5
				Moyenne	-0,4
EASTERN AFRICA					
Kenya	-1,3	0,0	-0,3		-0,5
Madagascar	0,6	0,3	0,9		0,6
Malawi	-0,1	-0,1			-0,1
Rwanda	-1,0	0,0	1,8		-0,3
Tanzania	0,3	-0,3	0,3		0,2
Uganda	0,8	-1,0	-0,9		-0,3
Zambia	-0,5	0,0	0,1		-0,1
Zimbabwe	-0,2	-0,1	-0,5		-0,3
				Moyenne	-0,1

Decrease in Mean Duration of PP Insusceptibility (countries with at least 3 DHS)

	<i>Average difference per year in months between</i>				
Country	<i>DHS 2 and DHS 1</i>	<i>DHS 3 and DHS 2</i>	<i>DHS 4 and DHS 3</i>	<i>DHS 5 and DHS 4</i>	<i>The first & last survey</i>
WESTERN AFRICA & CAMEROON					
Bénin	-0,5	-0,1			-0,3
Burkina	0,0	-0,4			-0,2
Ghana	-0,1	-0,3	-0,1	-0,2	-0,2
Mali	0,0	-0,2	-0,1		-0,1
Niger	0,0	0,0			0,0
Nigeria	-0,4	-0,1			-0,3
Senegal	-0,1	-0,1	-0,2		-0,2
Cameroon	-0,1	-0,3			-0,2
				Moyenne	-0,2
EASTERN AFRICA					
Kenya	0,4	-0,2	0,0		0,0
Madagascar	-0,1	-0,1			-0,1
Malawi	-0,3				-0,3
Rwanda	-0,1	0,0			-0,1
Tanzania	0,0	-0,4	-0,2		-0,2
Uganda	0,1	-0,1	-0,1		0,0
Zambia	0,2	0,2	-0,4		0,0
Zimbabwe	0,2	0,0	0,0		0,1
				Moyenne	-0,1

Increase in Contraceptive Prevalence modern methods (countries with at least 3 DHS)

	<i>Percentage point per year difference between</i>				
Country	<i>DHS 2 and</i>	<i>DHS 3 and</i>	<i>DHS 4 and</i>	<i>DHS 5 and</i>	<i>The first &</i>
	<i>DHS 1</i>	<i>DHS 2</i>	<i>DHS 3</i>	<i>DHS 4</i>	<i>last survey</i>
WESTERN AFRICA & CAMEROON					
Bénin	0,7	-0,2			0,2
Burkina	0,1	0,8	1,6		0,7
Ghana	1,2	0,5	1,1	-0,4	0,6
Mali	0,4	0,2	0,1		0,3
Niger	0,4	0,0			0,2
Nigeria	0,6	-0,5	0,3		0,3
Senegal	0,3	1,0	0,2		0,4
Cameroon	0,4	0,9			0,6
				Moyenne	0,4
EASTERN AFRICA					
Kenya	2,4	0,8	0,0	1,3	1,1
Madagascar	1,0	1,0	2,3		1,4
Malawi	2,3	0,6			1,7
Rwanda	-0,9	1,0	6,8		0,9
Tanzania	1,7	1,2	0,5		1,1
Uganda	0,8	1,1	0,7		0,9
Zambia	1,3	1,5	0,8		1,2
Zimbabwe	1,0	1,4	1,4		1,3
				Moyenne	1,2

The Proximate Determinants: Main findings

Patterns identified in Western, Middle Africa

1 - Percentages of women in union decline

About – 0.5 percentage point per year

2 - Mean durations of PPI decline,

About – 0.2 month per year

3 - Increases in Contraceptive Prevalence

Between 0.5 to 1.5 percentage point per year.

4 - High percentages of traditional methods

Especially when Contraceptive Prevalence is low

5 - Recourse to abortion

With Total Abortion Rates around 0.6 / 0.7 in Western Africa

PARAMETERS USED FOR RUNNING THE FAMPLAN MODEL: values in 2010

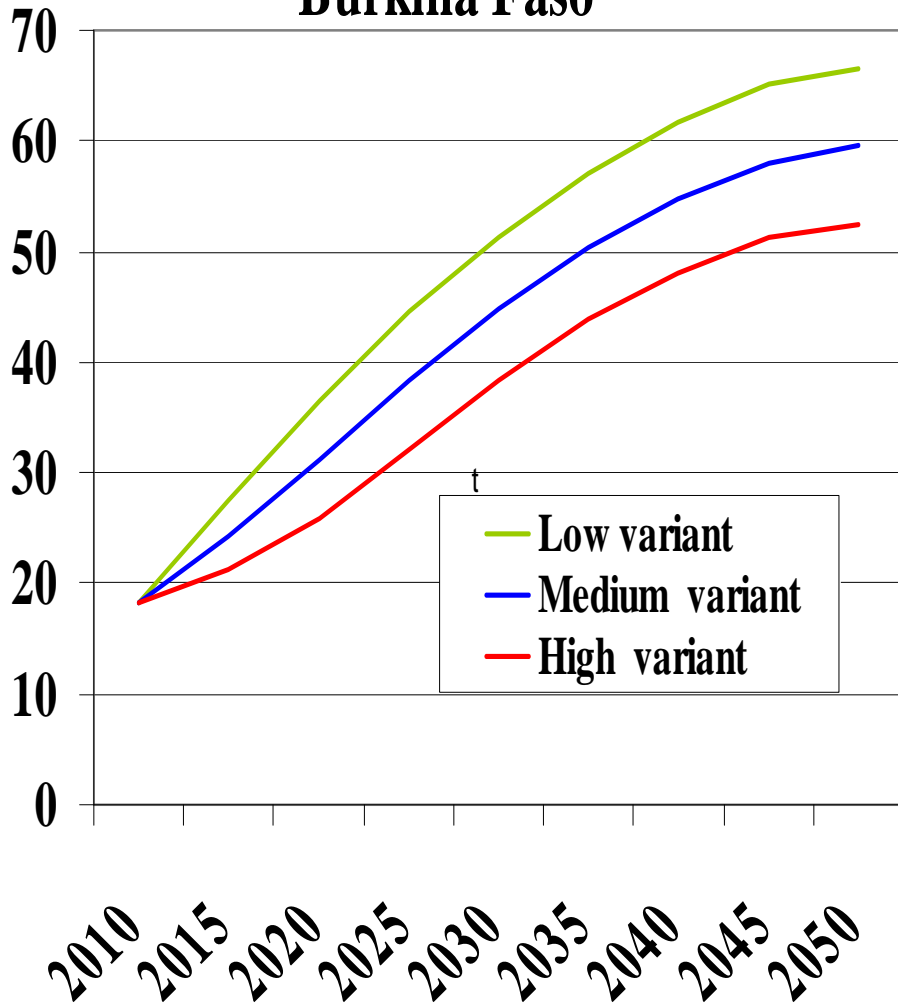
<i>Country</i>	<i>Burkina</i>	<i>Ghana</i>	<i>Niger</i>	<i>Nigeria</i>
<i>Total fertility rate 2010</i>	5,8	4,2	7,0	5,1
<i>Contraceptive prevalence rate 2000</i>				
- Any method.....	18,3	24,3	13,2	13,5
- Modern methods.....	15	17,5	6,6	8,4
<i>Percentage of modern methods</i>	82	72	50	62
<i>Method mix (2006 or 2008)</i>				
- Sterilization (Female)	1	7	3	3
- Pill.....	28	20	27	13
- Injectables.....	31	27	13	20
- I U D.....	1	1	1	8
- Implant	12	4	0	0
- Condoms.....	9	10	0	19
- Vaginal barrier methods.....	1	2	0	0
- Traditional, folk and other methods..	18	30	56	38
Total.....	100	100	100	100
Average effectiveness	87	81	70	76
<i>Other proximate determinants</i>				
- Percent of women in union.....	73	58	85	70
- Postpartum insusceptibility (in mo	19	15	16	14
- Total abortion rate.....	0	0	0	0
- Sterility (percent).....	3	3	3	3

Assumptions made to run FamPlan

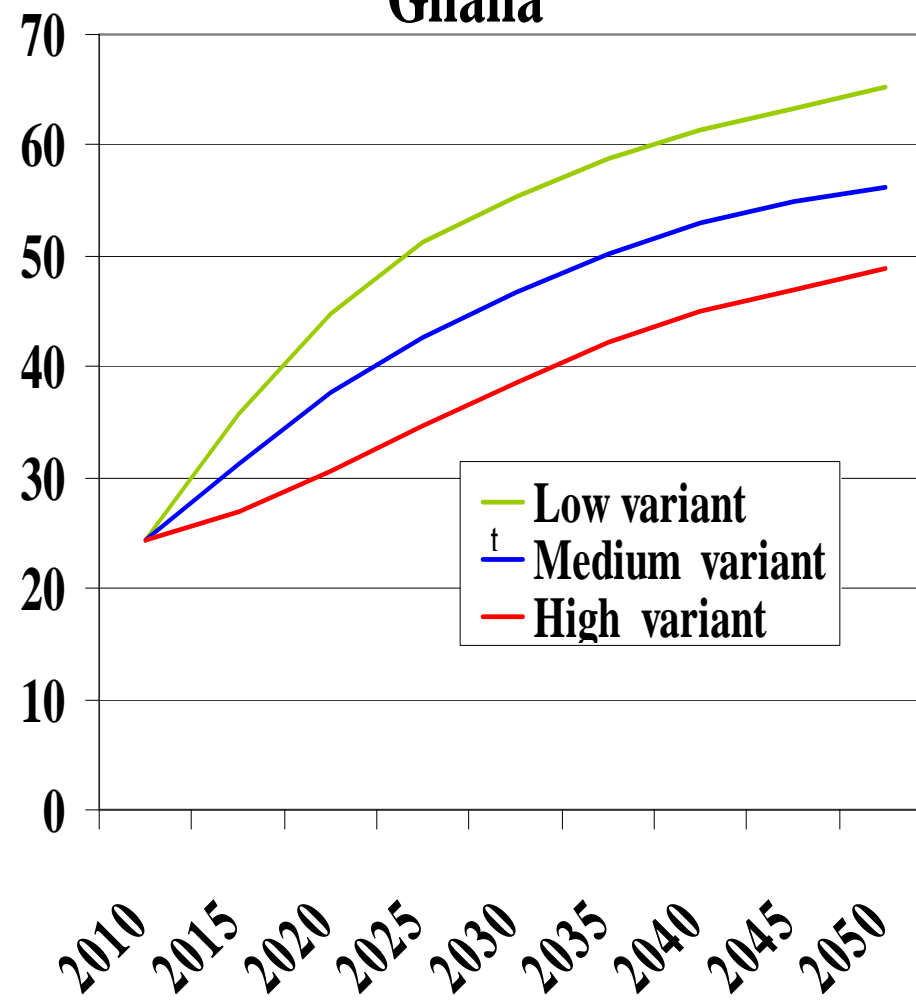
- 1 – Three Variants Increases in Contraceptive Prevalence: +0.5 /+1.0/+1.5 Pct Pts per year
- 2 – For scenarios on the Method Mix and on the Proximate Determinants
 - A. Increases in Contraceptive Prevalence only :
 - B. A + More efficient Method Mix
 - C. B + reduced percentage of women in union and reduced duration of PPI
 - D. C+Constant Total abortion Rate:0.5 per woman

1- Contraceptive Prevalence needed to meet the UN fertility variants (with scenario C)

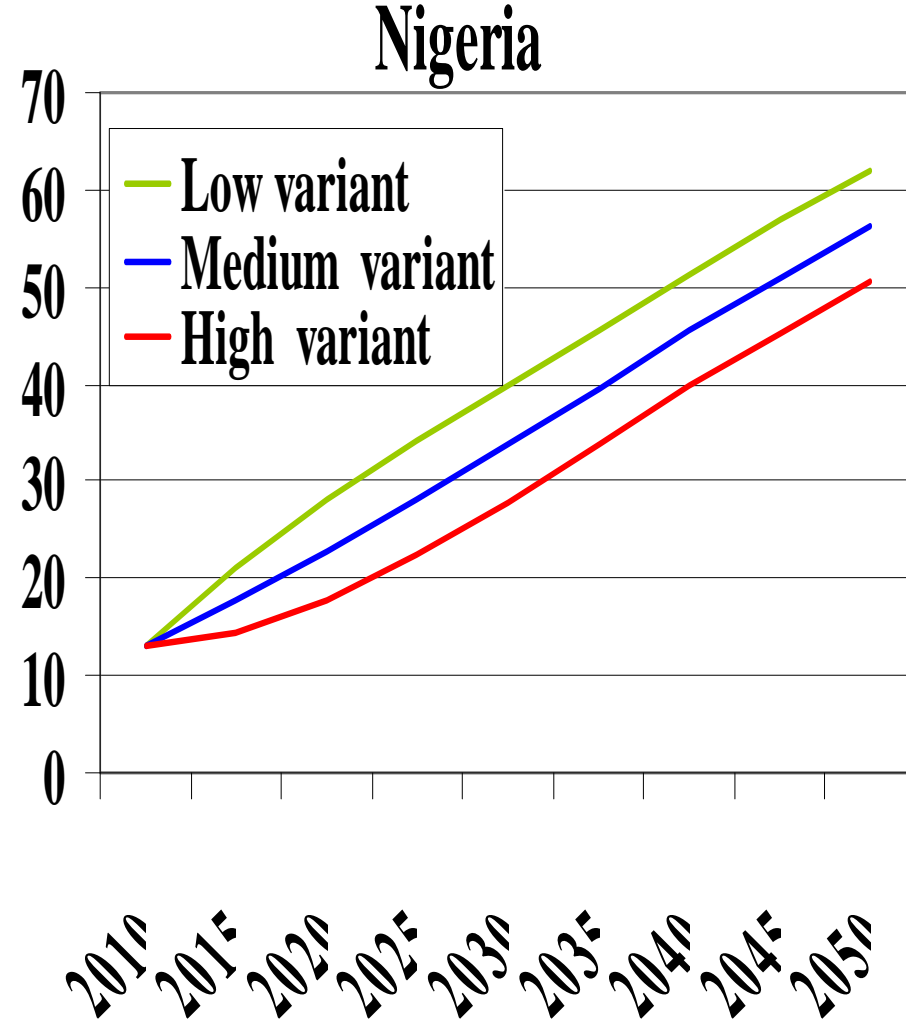
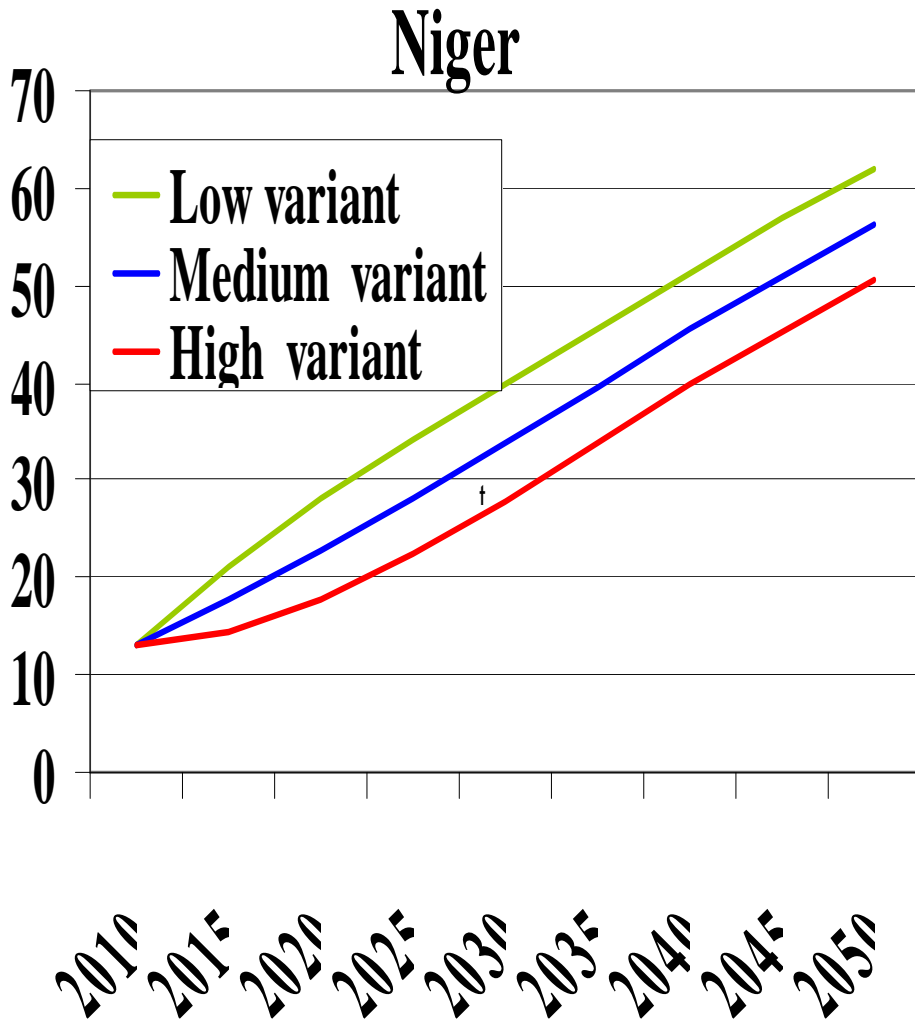
Burkina Faso



Ghana

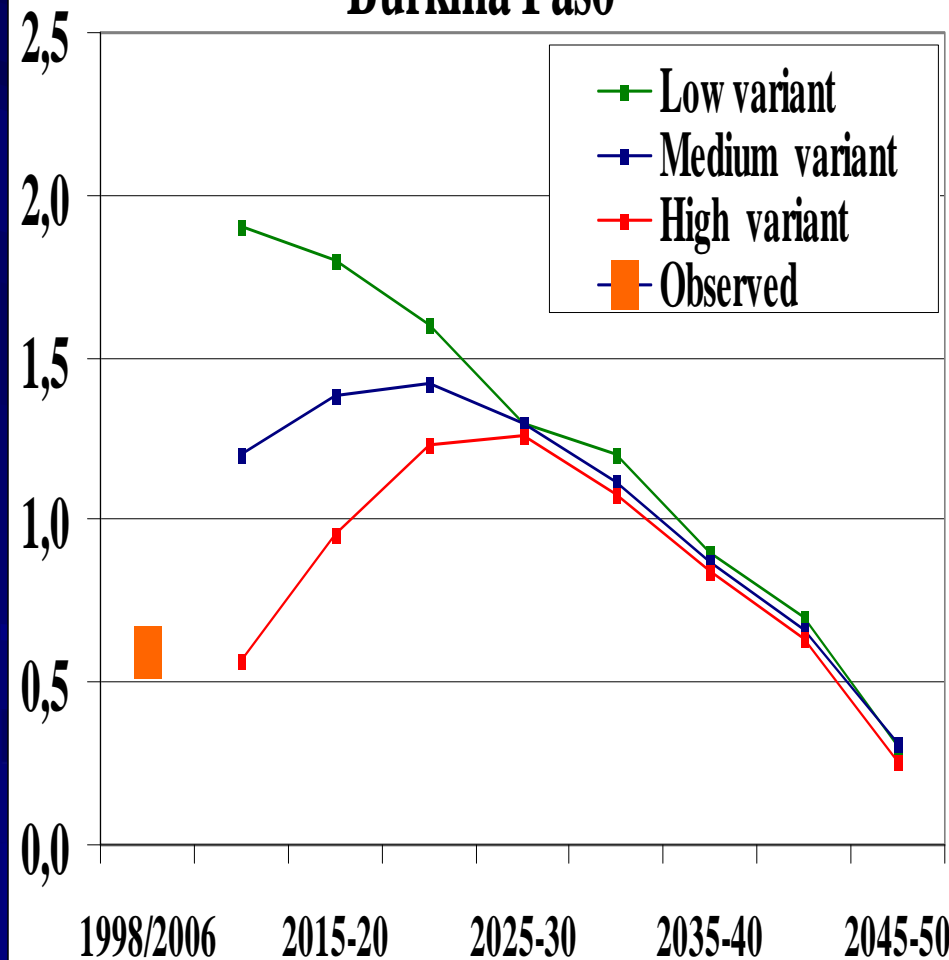


1- Contraceptive Prevalence needed to meet the UN fertility variants (with scenario C)

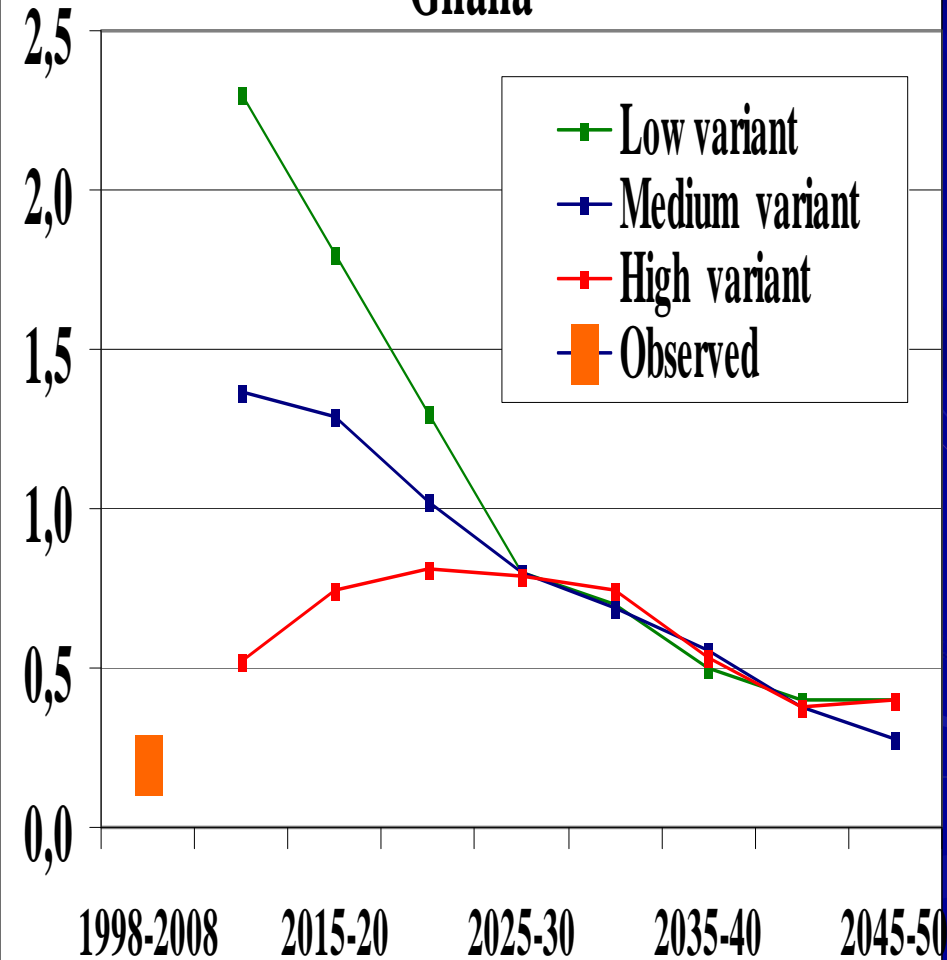


1 - Increase in Contraceptive Prevalence needed to meet the UN fertility variants

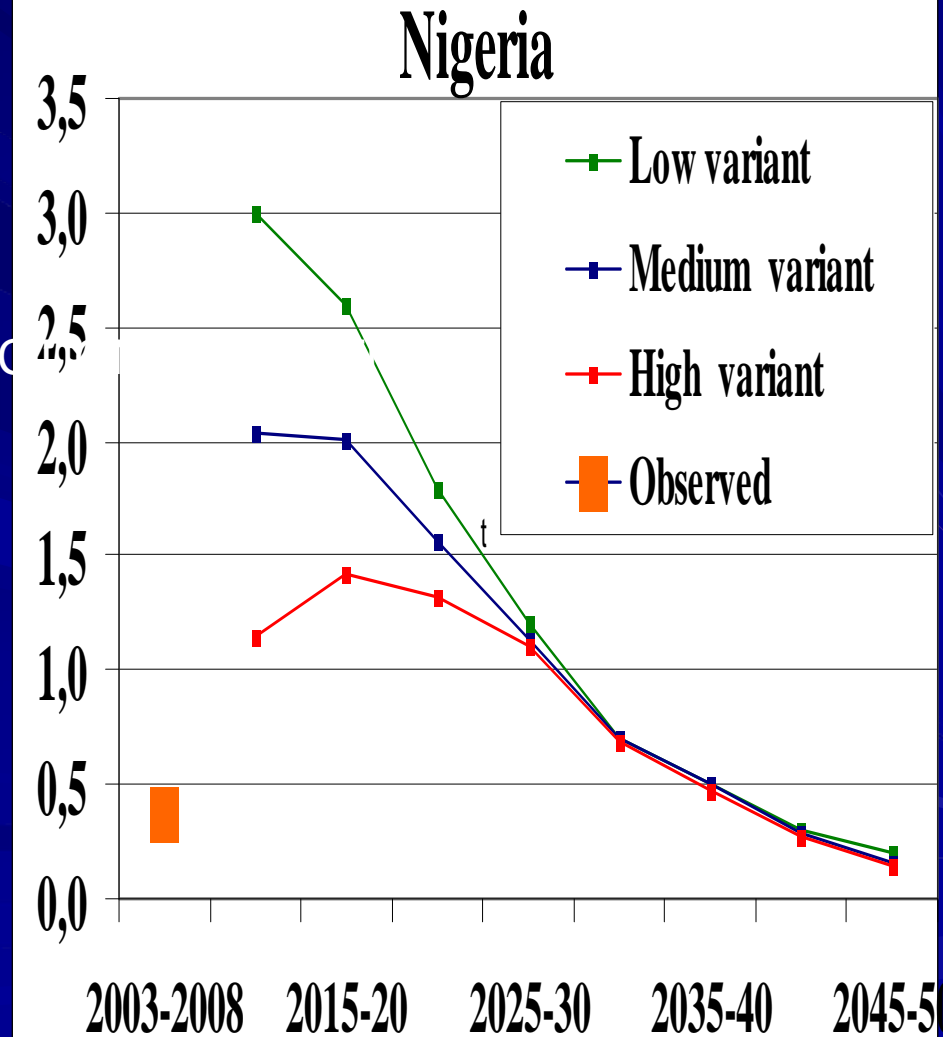
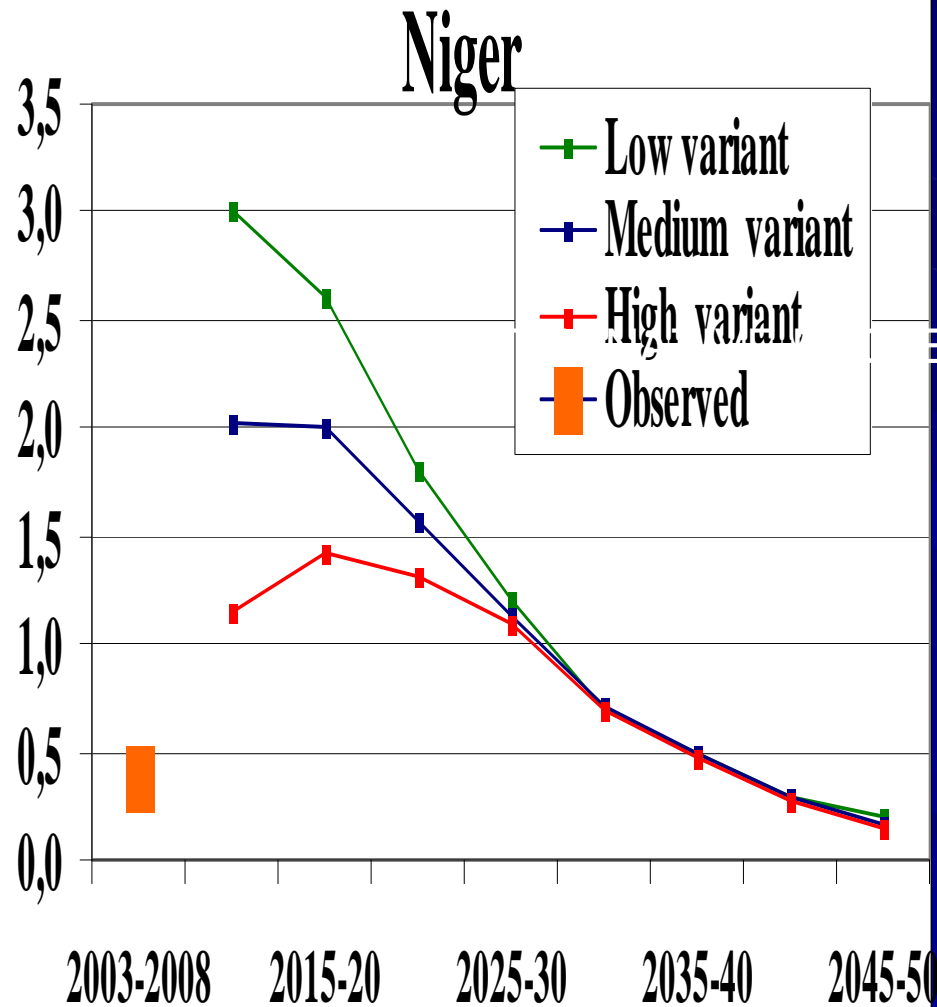
Burkina Faso



Ghana



1 - Increase in Contraceptive Prevalence needed to meet the UN fertility variants



2 - ALTERNATIVE PROJECTION OF FERTILITY USING FAMPLAN-2050 TFR

	Scenarios				Difference
	A	B	C	D	Sc.D- Sc.A
BURKINA FASO					
<i>Total Fertility Rate in 2010:</i>	A, Estimated Total Fertility Rate by FAMPLAN				
0,5 point per year 2010: 18,3, 2050: 38,3	4,5	4,3	4,0	3,9	-0,5
1,0 point per year 2010: 18,3, 2050: 58,3	3,1	3,0	2,8	2,6	-0,6
1,5 point per year 2010: 18,3, 2050: 65,8	2,7	2,5	2,3	2,1	-0,6
	B, Difference between the FAMPLAN variants				
Between the 1,0 and 0,5 point	-1,3	-1,4	-1,3	-1,3	
Between the 1,5 and 1,0 point	-0,5	-0,5	-0,5	-0,5	
Between the 1,5 and 0,5 point	-1,8	-1,9	-1,7	-1,9	
	C, Difference with the UN 2008 fertility variant in 2050				
0,5 point per year - High Variant : 3,19	1,3	1,2	0,8	0,7	
1,0 point per year - Medium Variant : 2,69	0,5	0,3	0,1	-0,1	
1,5 point per year - Low Variant : 2,19	0,5	0,3	0,1	-0,1	

2 - ALTERNATIVE PROJECTION OF FERTILITY USING FAMPLAN-2050 TFR

	Scenarios				Difference
	A	B	C	D	Sc,D- Sc,A
GHANA					
<i>Total Fertility Rate in</i>	A. Estimated Total Fertility Rate by FAMPLAN				
0,5 point per year 2010: 24,3, 2050: 44,3	3,3	3,1	3,2	3,1	-0,3
1,0 point per year 2010: 24,3, 2050: 64,3	2,4	2,1	2,1	1,9	-0,5
1,5 point per year 2010: 24,3, 2050: 71,8	2,0	1,7	1,7	1,4	-0,6
	B. Difference between the FAMPLAN variants				
Between the 1,0 and 0,5 point	-1,0	-1,1	-1,1	-1,2	
Between the 1,5 and 1,0 point	-0,4	-0,4	-0,4	-0,4	
Between the 1,5 and 0,5 point p	-1,3	-1,5	-1,5	-1,6	
	C. Difference with the United Nations 2008 fertility variant in 2050				
0,5 point per year - High Variant : 2,93	0,4	0,2	0,2	0,1	
1,0 point per year - Medium Variant : 2,43	-0,1	-0,4	-0,4	-0,6	
1,5 point per year - Low Variant : 1,93	0,1	-0,3	-0,3	-0,5	

2 - ALTERNATIVE PROJECTION OF FERTILITY USING FAMPLAN-2050 TFR

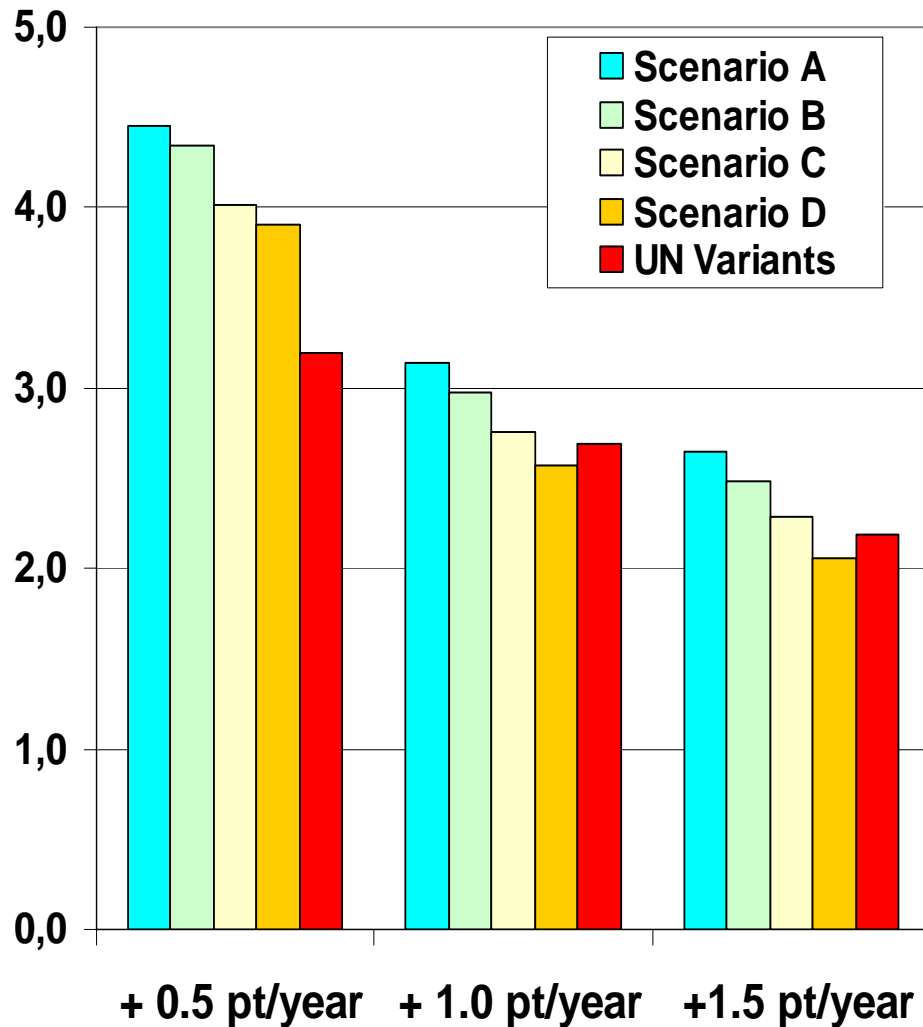
	Scenarios				Difference
	A	B	C	D	Sc,D- Sc,A
NIGER					
Total Fertility Rate in 2010:	A, Estimated Total Fertility Rate by FAMPLAN				
0,5 point per year 2010: 13,2, 2050: 33,2	5,8	5,3	5,3	5,2	-0,6
1,0 point per year 2010: 13,2, 2050: 53,2	4,6	3,8	3,8	3,6	-1,0
1,5 point per year 2010: 13,2, 2050: 60,7	4,1	3,2	3,2	3,0	-1,1
	B, Difference between the FAMPLAN variants				
Between the 1,0 and 0,5 point	-0,6	0,3	0,3	0,4	
Between the 1,5 and 1,0 point	-0,5	-0,6	-0,6	-0,6	
Between the 1,5 and 0,5 point p	-1,7	-2,1	-2,1	-2,2	
	C. Difference with the UN 2008 fertility variant in 2050				
0,5 point per year - High Variant : 4,01	1,8	1,3	1,3	1,2	
1,0 point per year - Medium Variant : 3,51	1,1	0,2	0,2	0,1	
1,5 point per year - Low Variant : 3,01	1,1	0,2	0,2	-0,1	

2 - ALTERNATIVE PROJECTION OF FERTILITY USING FAMPLAN-2050 TFR

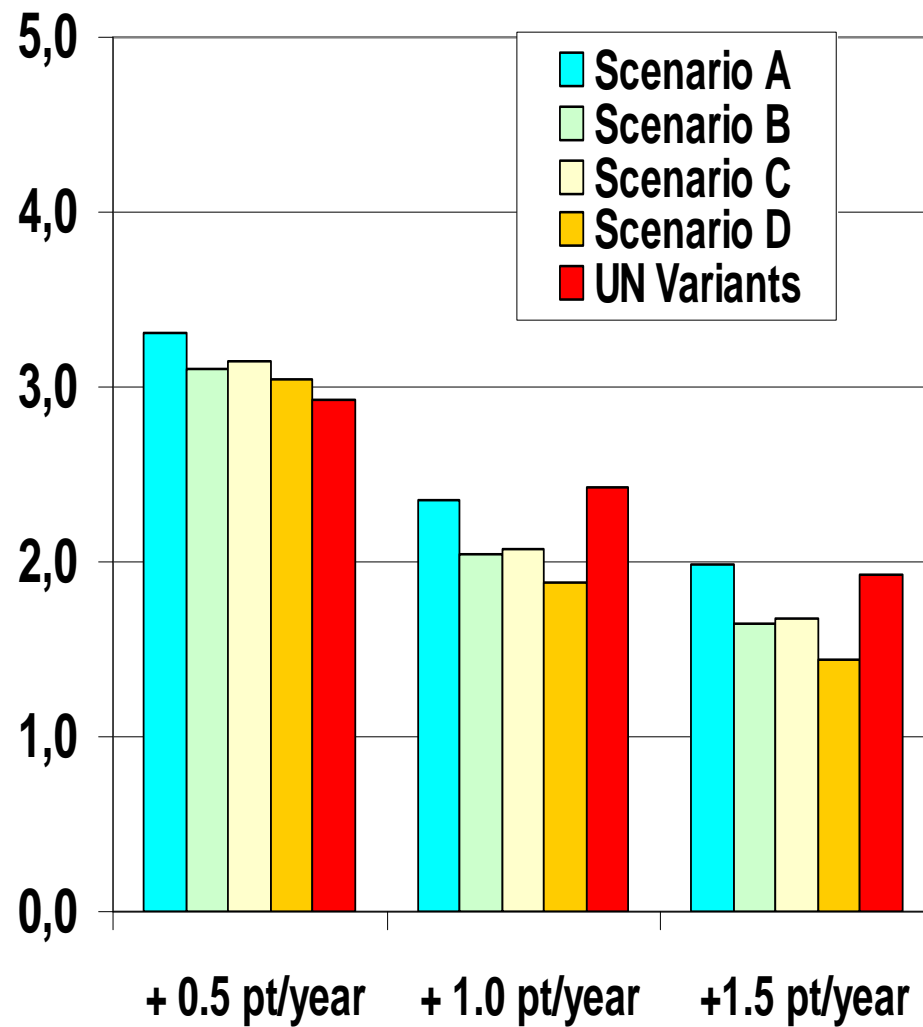
	Scenarios				Difference
	A	B	C	D	Sc,D- Sc,A
NIGERIA					
Total Fertility Rate in 2010:	A, Estimated Total Fertility Rate by FAMPLAN				
0,5 point per year 2010: 13,5, 2050: 33,5	4,1	3,9	3,4	3,3	-0,8
1,0 point per year 2010: 13,5, 2050: 53,5	3,2	2,8	2,5	2,3	-0,9
1,5 point per year 2010: 13,5, 2050: 61,0	2,8	2,4	2,1	1,9	-1,0
	B, Difference between the FAMPLAN variants				
Between the 1,0 and 0,5 point	-0,9	-1,1	-0,9	-1,0	
Between the 1,5 and 1,0 point	-0,4	-0,4	-0,4	-0,4	
Between the 1,5 and 0,5 point	-1,3	-1,5	-1,3	-1,4	
	C, Difference with the UN 2008 fertility variant in 2050				
0,5 point per year - High Variant : 2,86	1,3	1,0	0,5	0,4	
1,0 point per year - Medium Variant : 2,36	0,8	0,4	0,1	-0,1	
1,5 point per year - Low Variant : 1,86	1,0	0,5	0,2	0,0	

2 - ALTERNATIVE PROJECTION OF FERTILITY USING FAMPLAN-2050 TFR

Burkina Faso

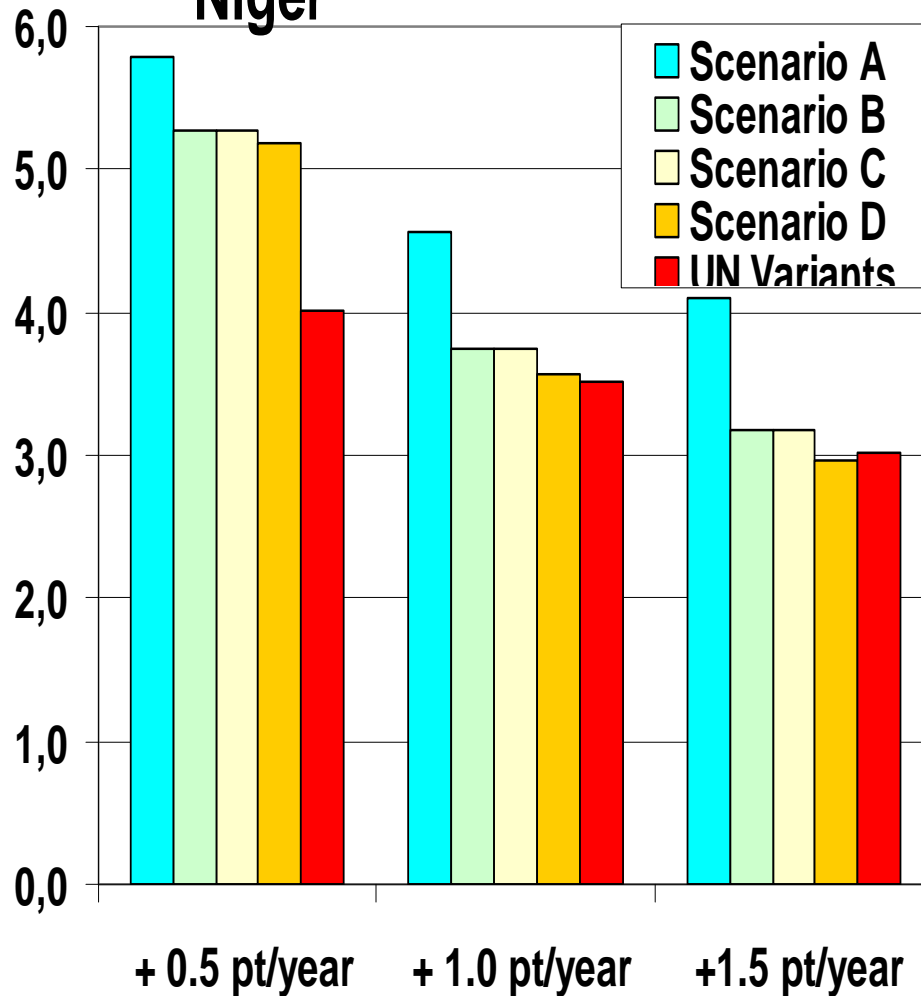


Ghana

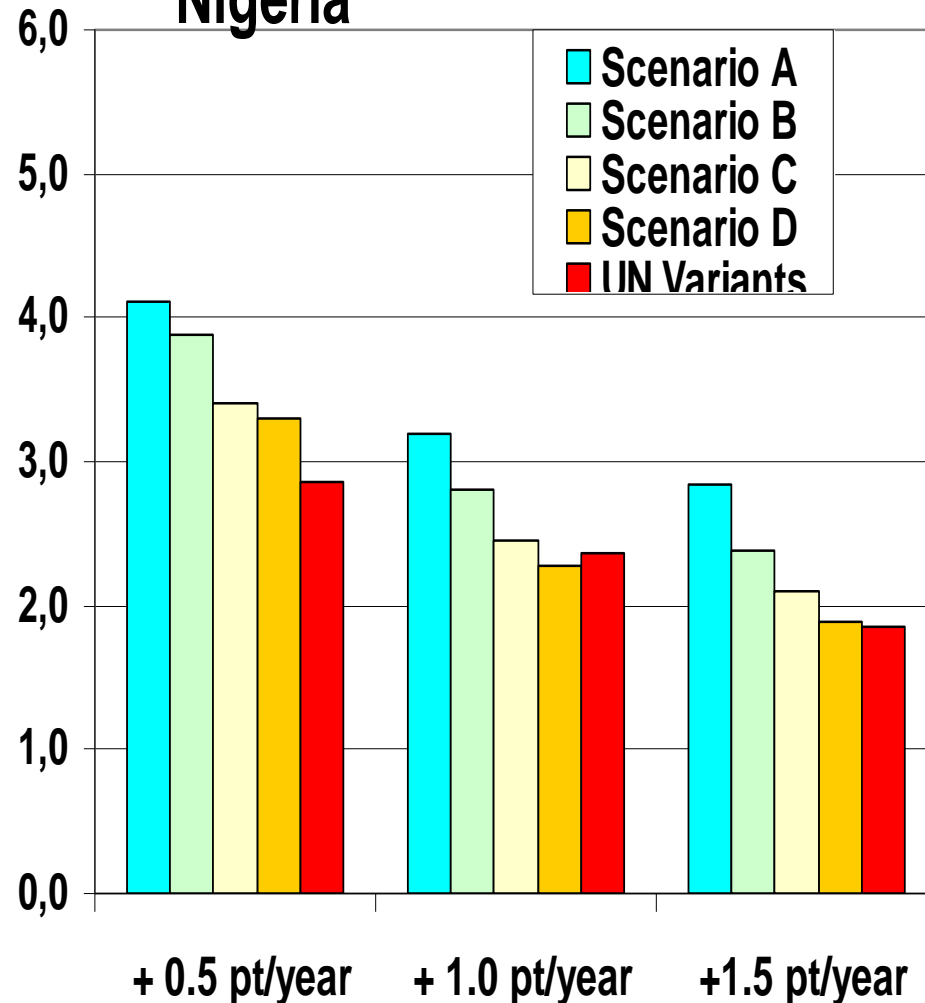


2 - ALTERNATIVE PROJECTION OF FERTILITY USING FAMPLAN-2050 TFR

Niger



Nigeria



DISCUSSION

**1 – Limits to the two exercises
(quality of data, assumptions)**

2 – There are still questions about

- a. the models (1950-2010) of fertility decline used
- b. the acceleration of increases in C.Prevalence
- c. fertility stalls, contraceptive use stalls
- d. projecting fertility using the FamPlan model
(limited to high fertility countries?, how to justify
the assumptions made, especially on abortion ?

CONCLUSION

- 1 - Population projections are (also) needed to have some sense of future challenges**
- 2 - Users should look at all scenarios**
- 3 - Users should be more aware of the importance of the proximate determinants: future TFR will depend on CPR but also on the other PD.**
- 4 - There is a need to verify the consistency between projected TFR the Method Mix and the Proximate Determinants**

