



# Trends in inequalities in caesarean sections

*Countdown to 2015*   
*Maternal, Newborn & Child Survival*



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**Presented by C Victora**

**on behalf of the Countdown to 2015 Equity Working Group**



# Overview

- 1. Background**
- 2. Methods**
- 3. Description of sample**
- 4. Results**
- 5. Discussion points**

# Background

- Sub-Saharan Africa and Southern Asia account for 85% of maternal deaths worldwide and 73% of intrapartum-related neonatal deaths
- Emergency obstetric care is critical to reducing the burden of these deaths
- Much debate around “optimal” caesarean rate
  - At least 1-2% for maternal indications?
  - At least 5% for newborn indications?
  - WHO: not more than 15%?

# Study population

- Included all Countdown countries in sub-Saharan Africa and South Asia with at least 2 DHS surveys reporting:
  - mode of delivery and
  - wealth index
- Deliveries to women in 3-5 years before survey
- Recoded deliveries in homes, dispensaries and health posts as vaginal

# Methods

- Calculated percent caesarean deliveries stratified by country and survey year, and by wealth quintile
- Used a binomial log-linear regression model to calculate crude risk ratio per year
- Grouped the sample into richer and poorer halves and calculated caesarean rate among urban and rural rich and poor

# Description of sample

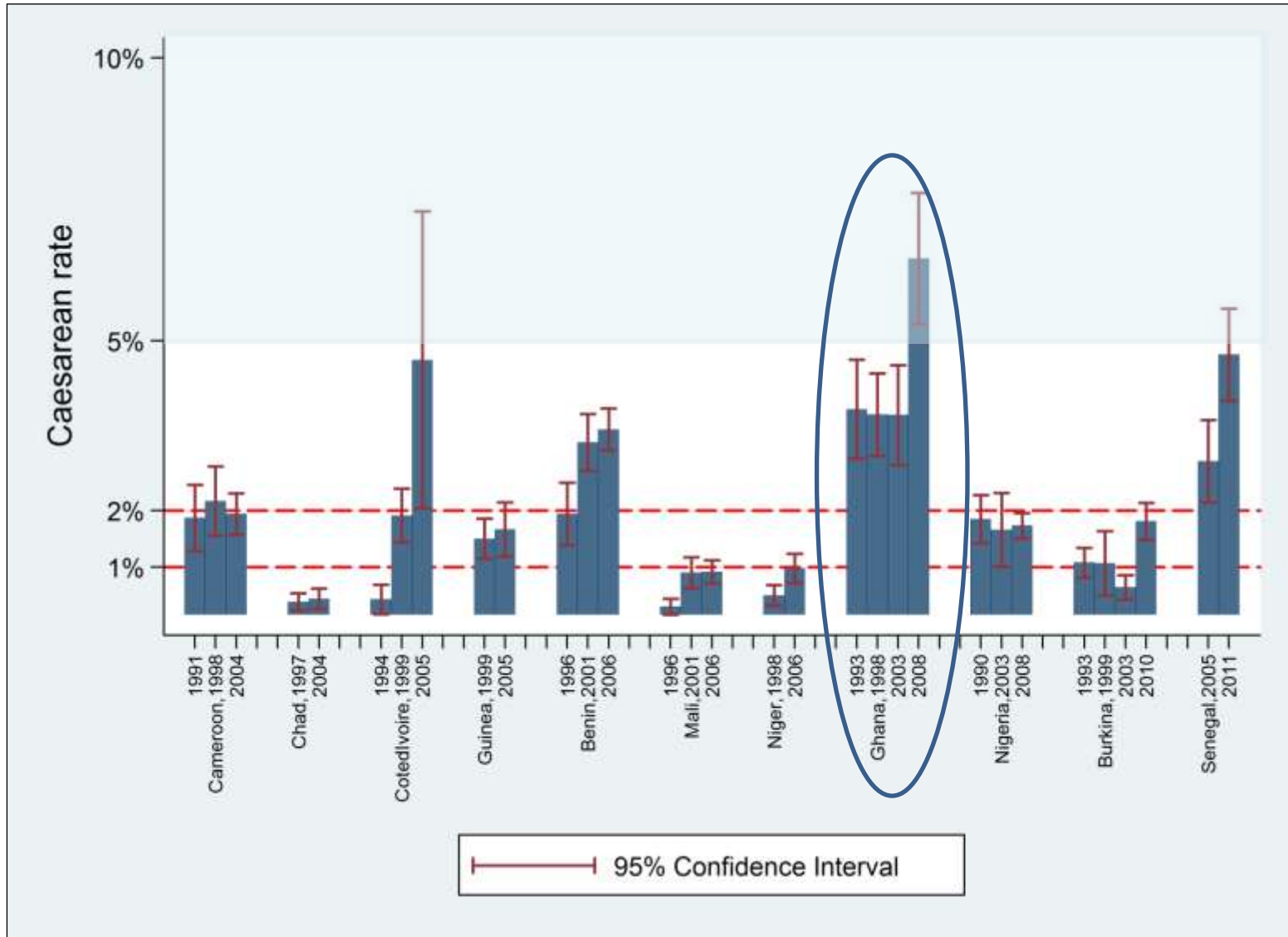
- Data from 80 surveys in 26 countries, covering 686,789 deliveries between 1985 and 2011

Eastern & Southern Africa	West & Central Africa	South Asia
<ul style="list-style-type: none"> <li>• Ethiopia (1995-2011)</li> <li>• Kenya (1988-2009)</li> <li>• Lesotho (1999-2010)</li> <li>• Madagascar (1994-2009)</li> <li>• Malawi (1987-2010)</li> <li>• Mozambique (1994-2004)</li> <li>• Rwanda (1987-2011)</li> <li>• Tanzania (1991-2010)</li> <li>• Uganda (1991-2011)</li> <li>• Zambia (1991-2007)</li> <li>• Zimbabwe (1991-2011)</li> </ul>	<ul style="list-style-type: none"> <li>• Benin (1993-2006)</li> <li>• Burkina Faso (1988-2010)</li> <li>• Cameroon (1986-2004)</li> <li>• Chad (1992-2004)</li> <li>• Cote d'Ivoire (1991-2005)</li> <li>• Ghana (1990-2008)</li> <li>• Guinea (1994-2005)</li> <li>• Mali (1992-2006)</li> <li>• Niger (1995-2006)</li> <li>• Nigeria (1985-2008)</li> <li>• Senegal (2000-2011)</li> </ul>	<ul style="list-style-type: none"> <li>• Bangladesh (1994-2007)</li> <li>• India (1988-2006)</li> <li>• Nepal (1992-2011)</li> <li>• Pakistan (1986-1991 / 2001-2007)</li> </ul>

# I. Trends in national caesarean rates over time

# West & Central Africa

Caesarean rate by country and DHS survey year – WEST AFRICA





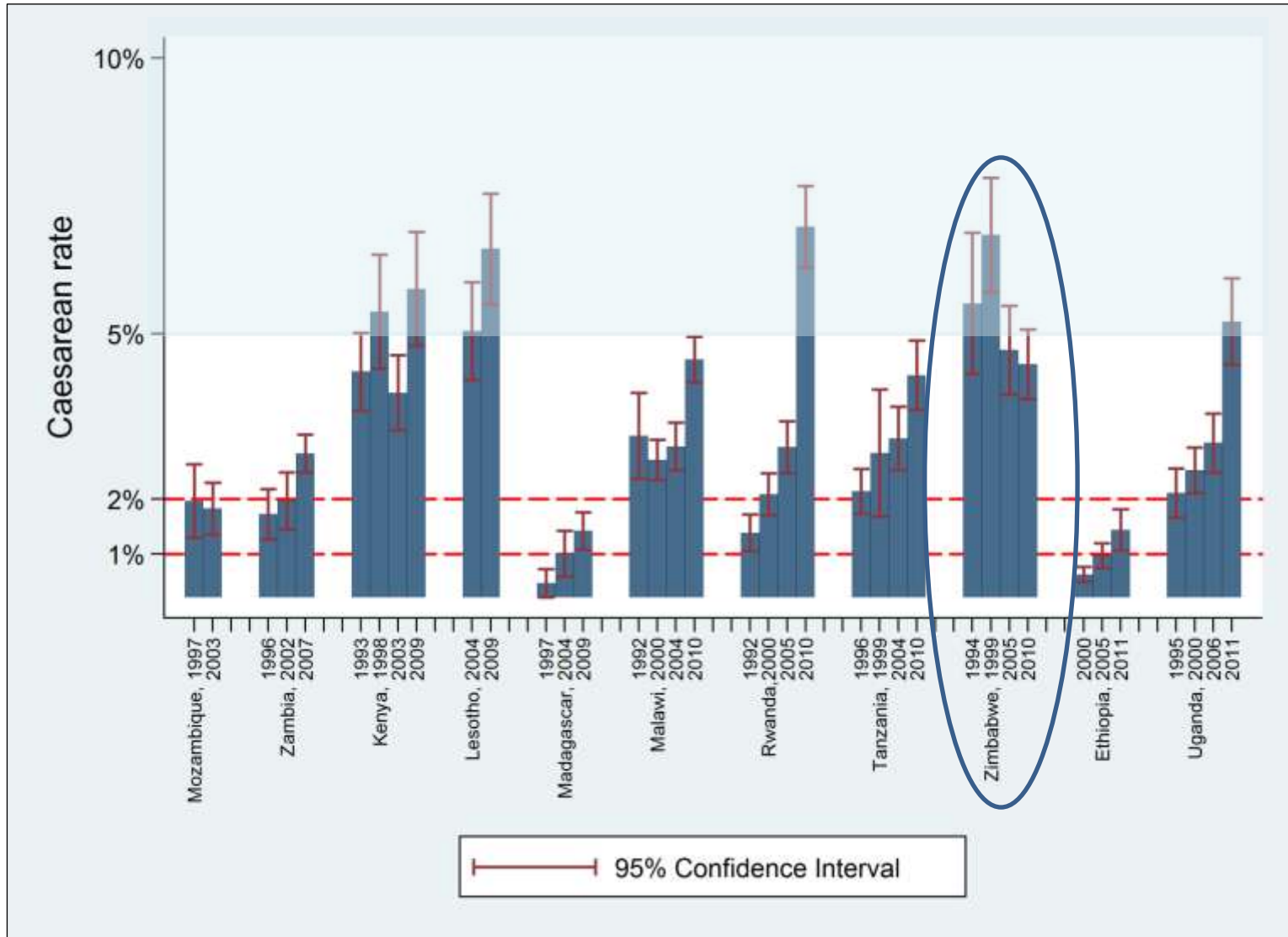
# West & Central Africa

## Risk ratio for caesarean delivery per year and 95% CI

Country	Risk ratio for caesarean per year	95% C.I.
Benin	1.05	1.03-1.07
Burkina Faso	1.04	1.02-1.06
Cameroon	1.00	0.97-1.03
Chad	0.99	0.91-1.06
Cote d'Ivoire	1.18	1.12-1.23
Ghana	1.04	1.02-1.06
Guinea	1.01	0.96-1.06
Mali	1.07	1.03-1.11
Niger	1.07	1.02-1.12
Nigeria	1.00	0.98-1.01
Senegal	1.05	1.01-1.09

# Eastern & Southern Africa

Caesarean rate by country and DHS survey year



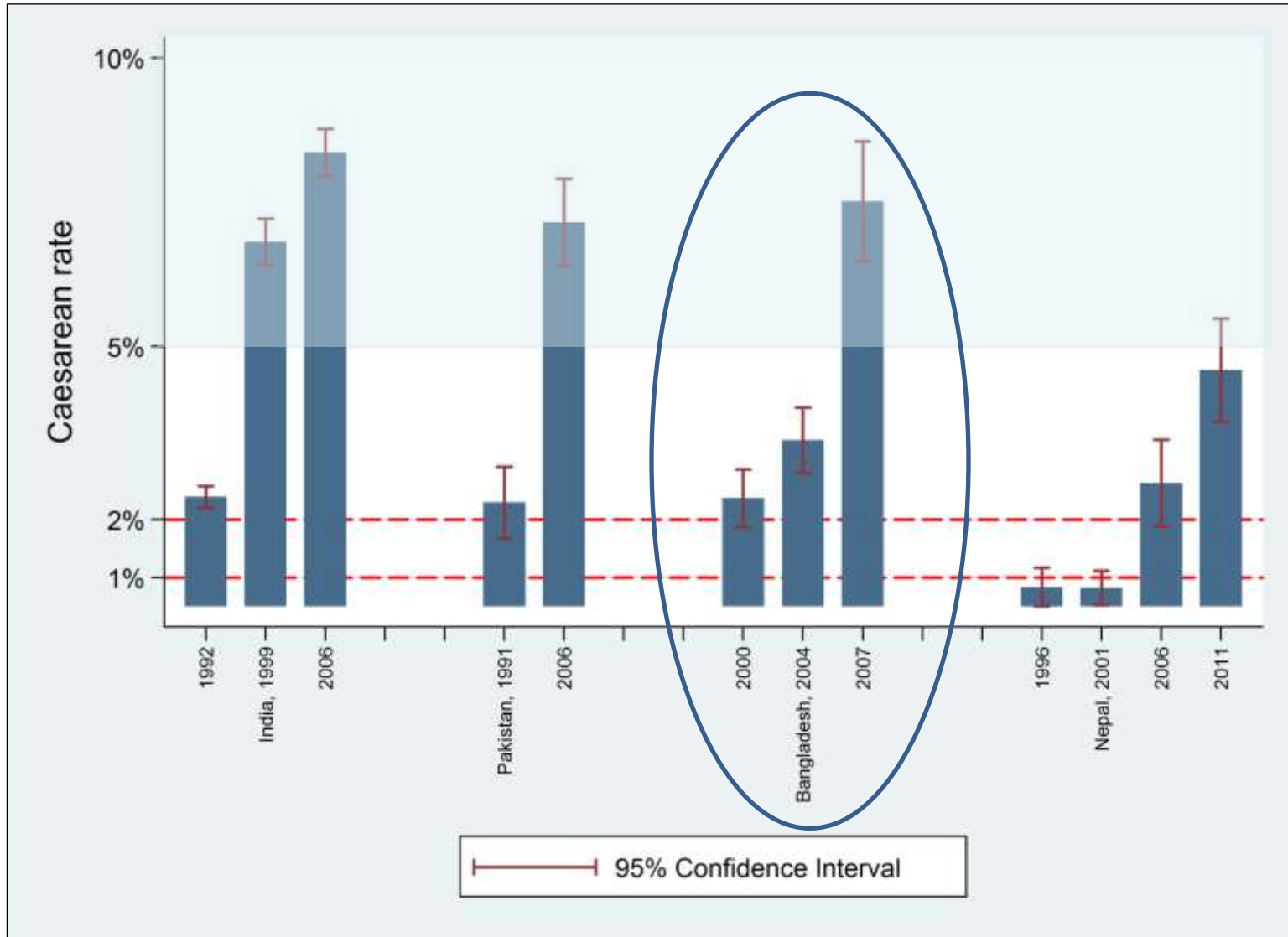
# Eastern & Southern Africa

## Risk ratio for caesarean delivery per year and 95% CI

Country	Risk ratio for caesarean per year	95% C.I.
Ethiopia	1.08	1.05-1.11
Kenya	1.02	1.00-1.03
Lesotho	1.06	1.02-1.10
Madagascar	1.07	1.03-1.12
Malawi	1.03	1.02-1.05
Mozambique	1.00	0.93-1.07
Rwanda	1.11	1.10-1.13
Tanzania	1.05	1.03-1.07
Uganda	1.06	1.05-1.08
Zambia	1.04	1.02-1.07
Zimbabwe	0.98	0.97-0.99

# South Asia

Caesarean rate by country and DHS survey year



# South Asia

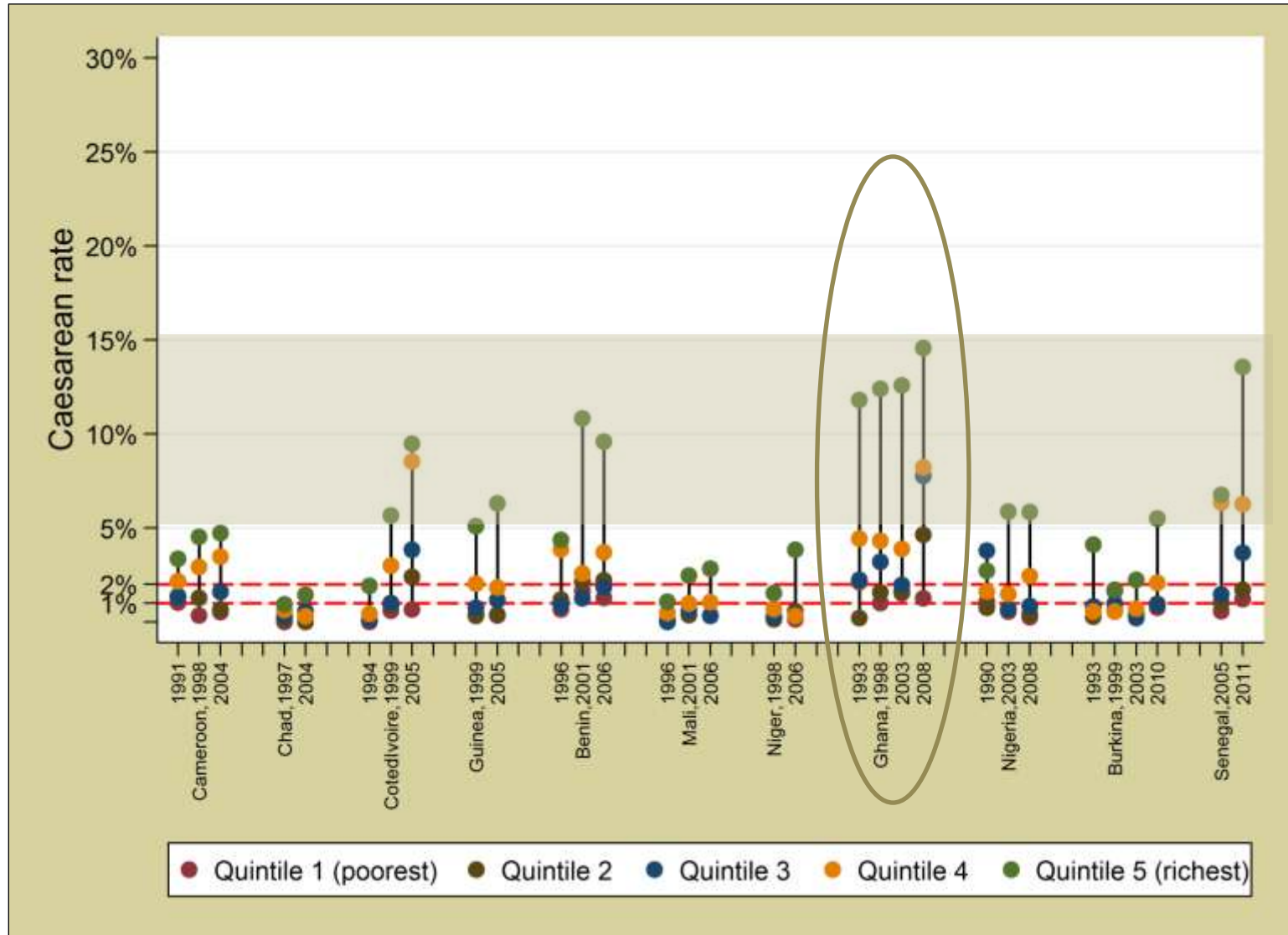
## Risk ratio for caesarean delivery per year and 95% CI

Country	Risk ratio for caesarean per year	95% C.I.
Bangladesh	1.19	1.16-1.22
India	1.09	1.08-1.10
Nepal	1.15	1.12-1.17
Pakistan	1.08	1.06-1.10

## II. Trends in caesarean rates by wealth quintile over time

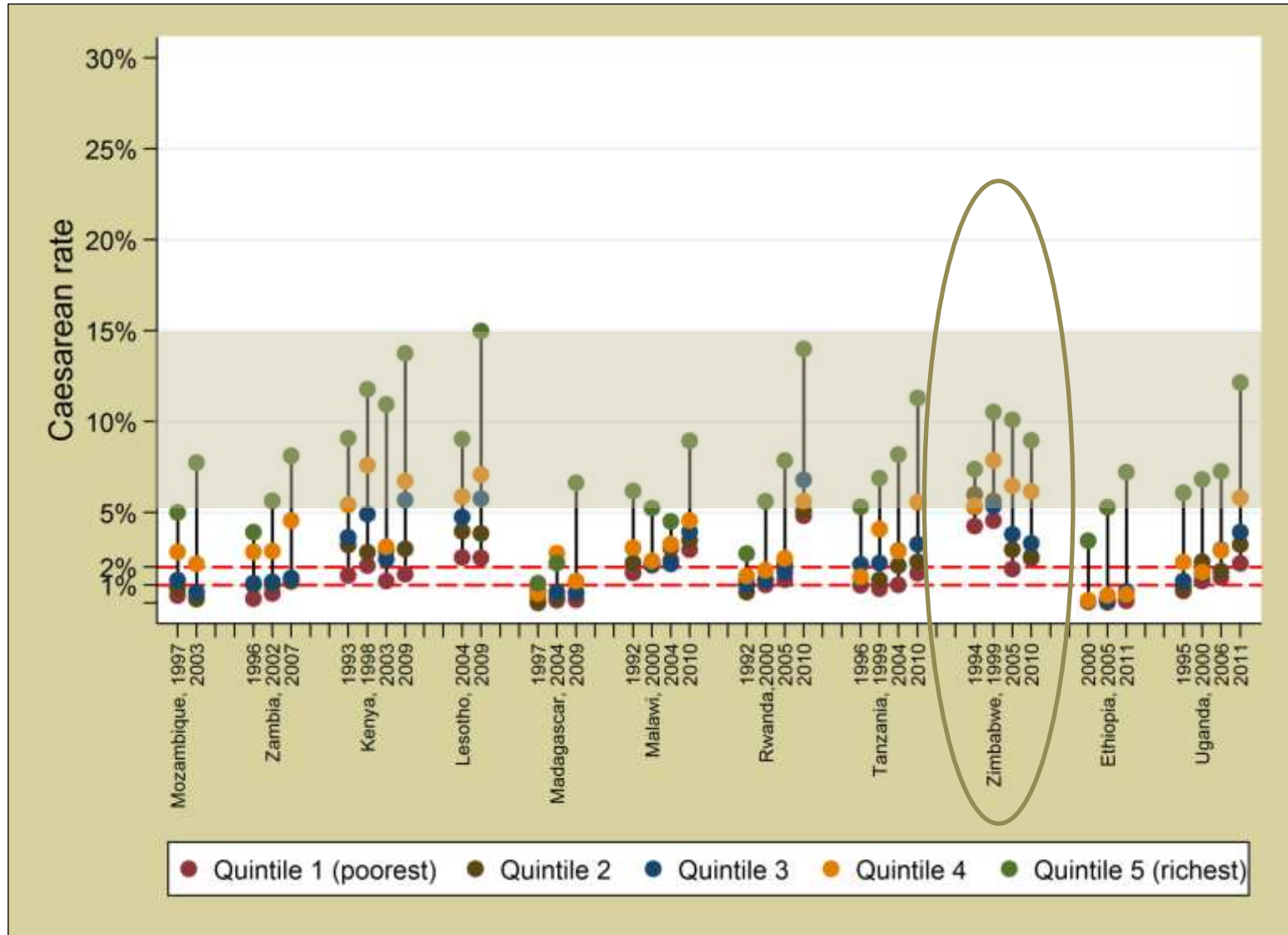
# West & Central Africa

Caesarean rate by wealth quintile and DHS survey



# Eastern & Southern Africa

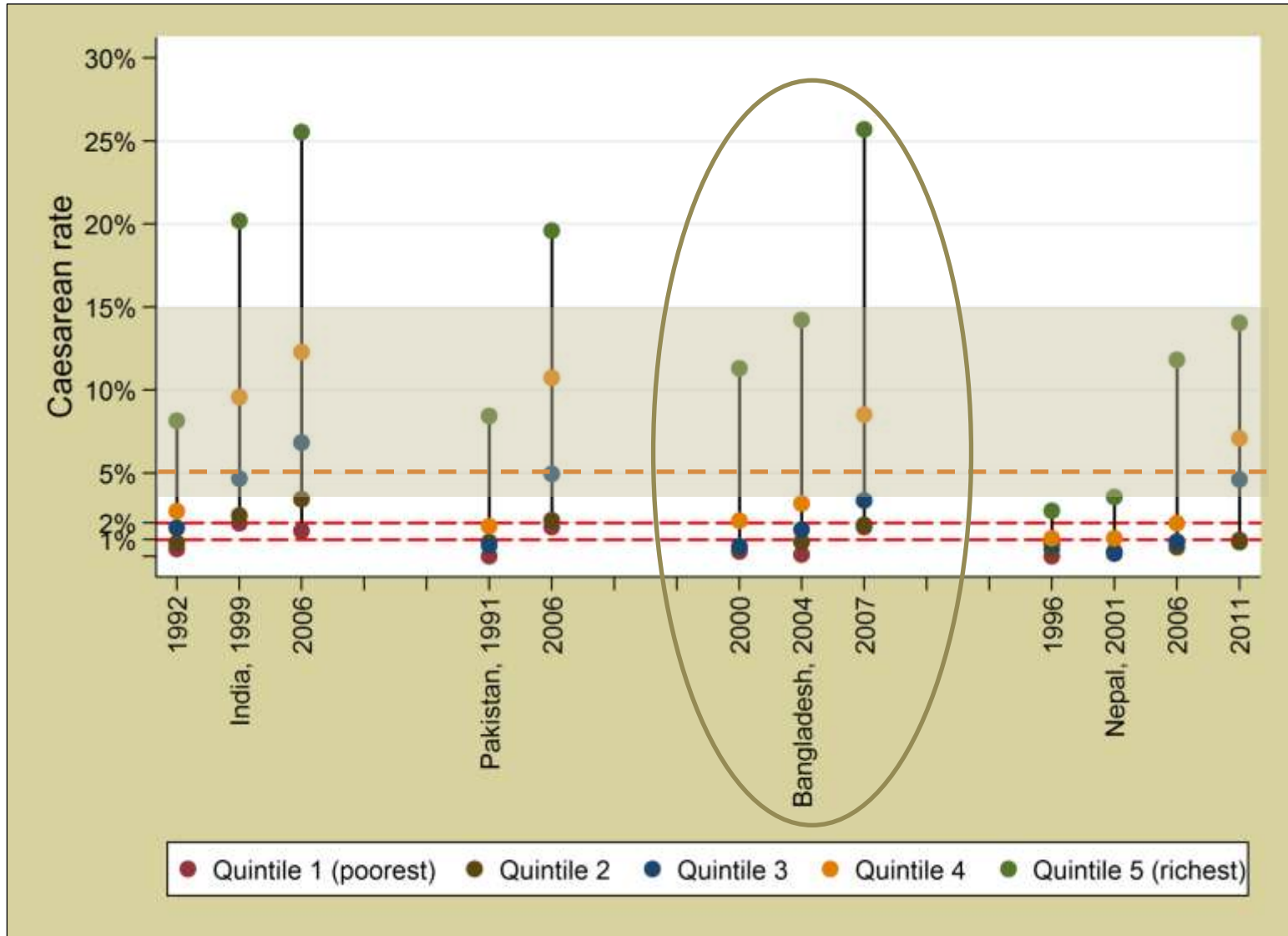
Caesarean rate by wealth quintile and DHS survey



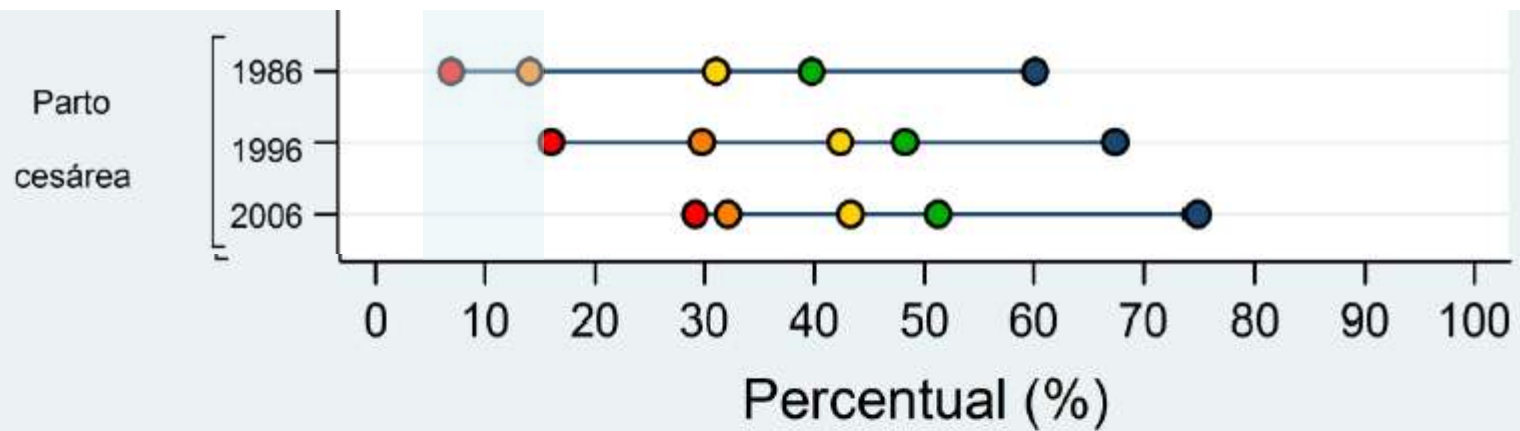


# South Asia

Caesarean rate by wealth quintile and DHS survey



# Brazil



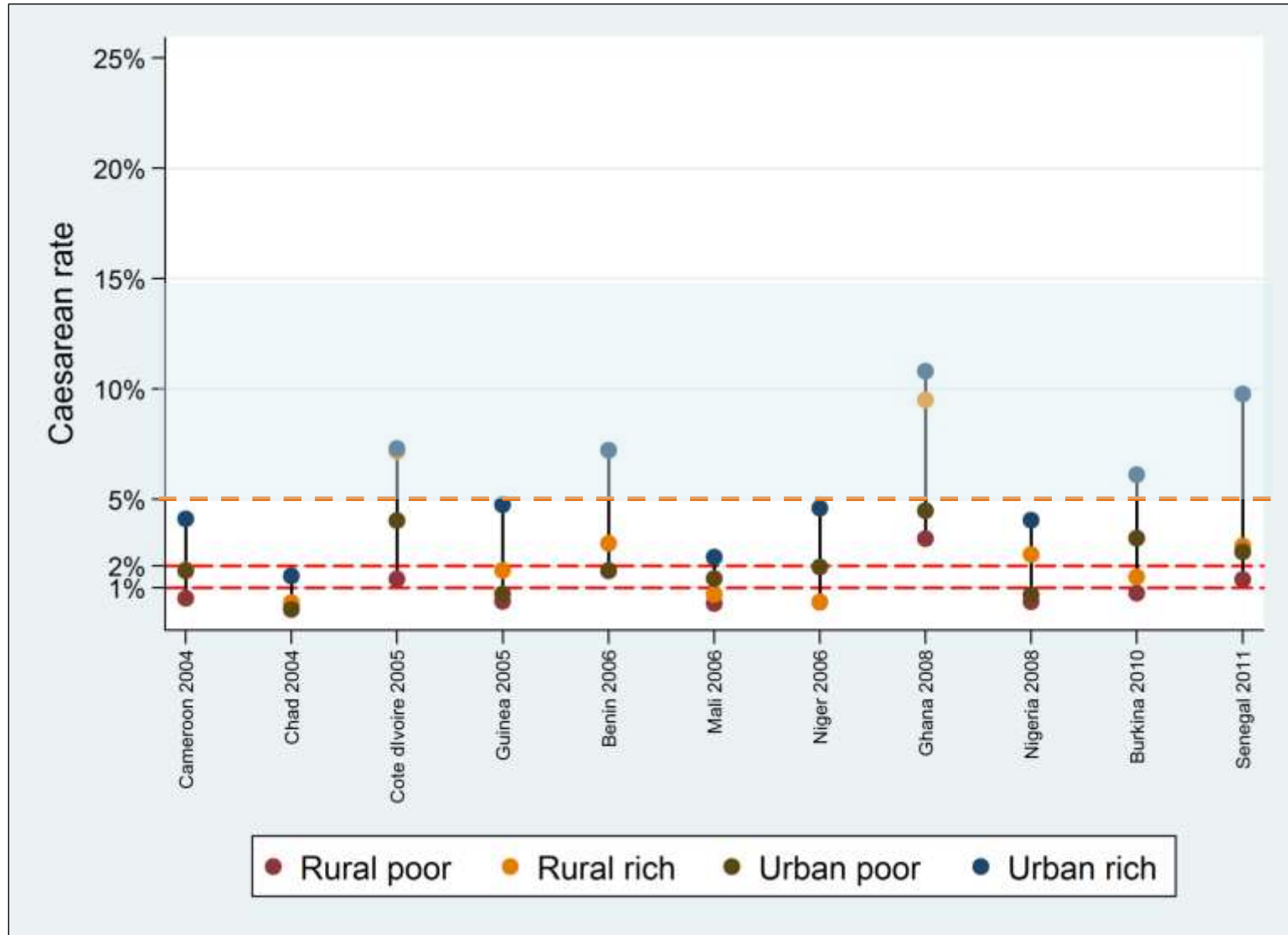
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● Q1   ● Q2   ● Q3   ● Q4   ● Q5

# III. Caesarean rates among rich and poor rural and urban women

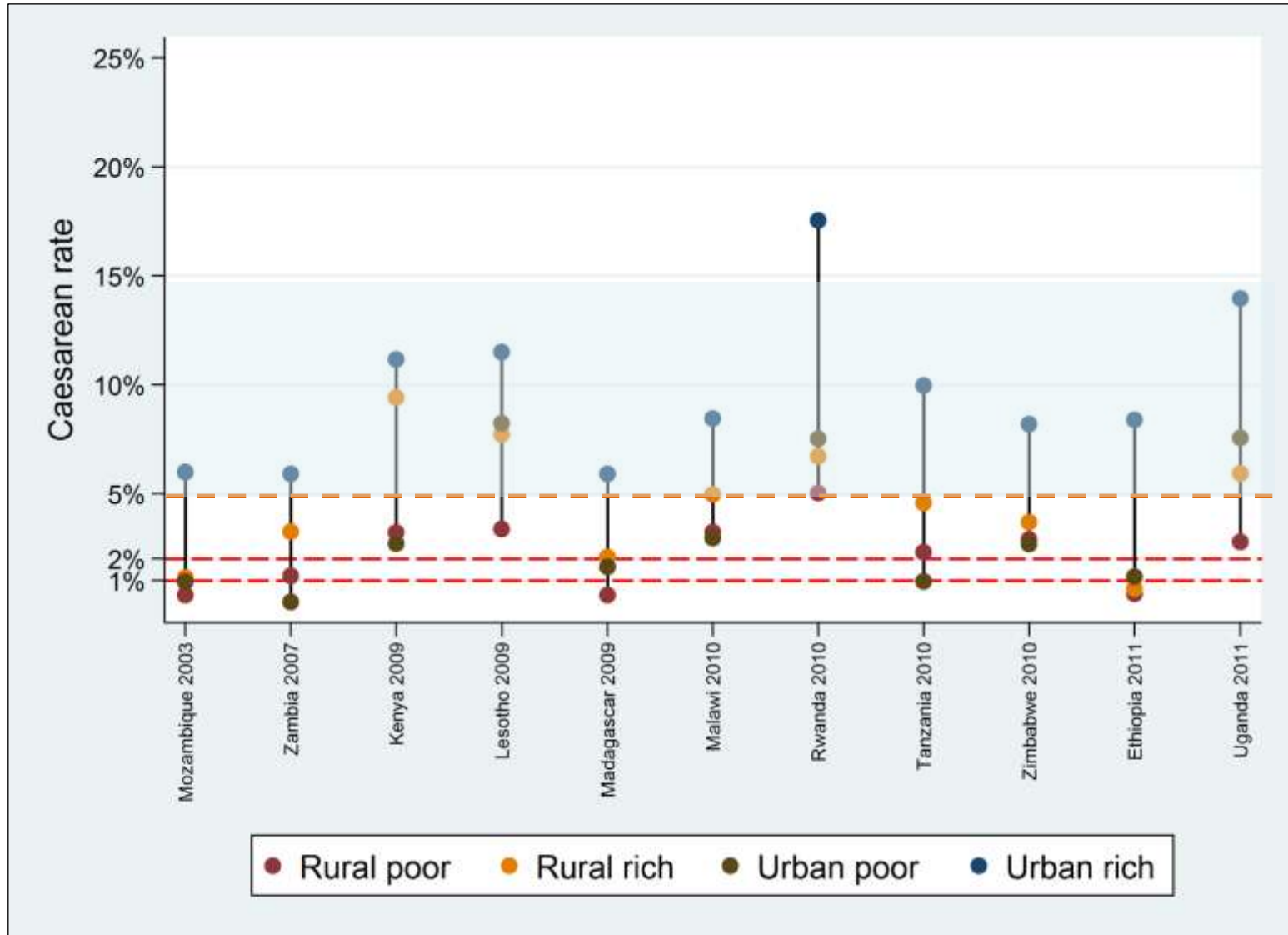
# West & Central Africa

Caesarean rate by residence and wealth (most recent survey)



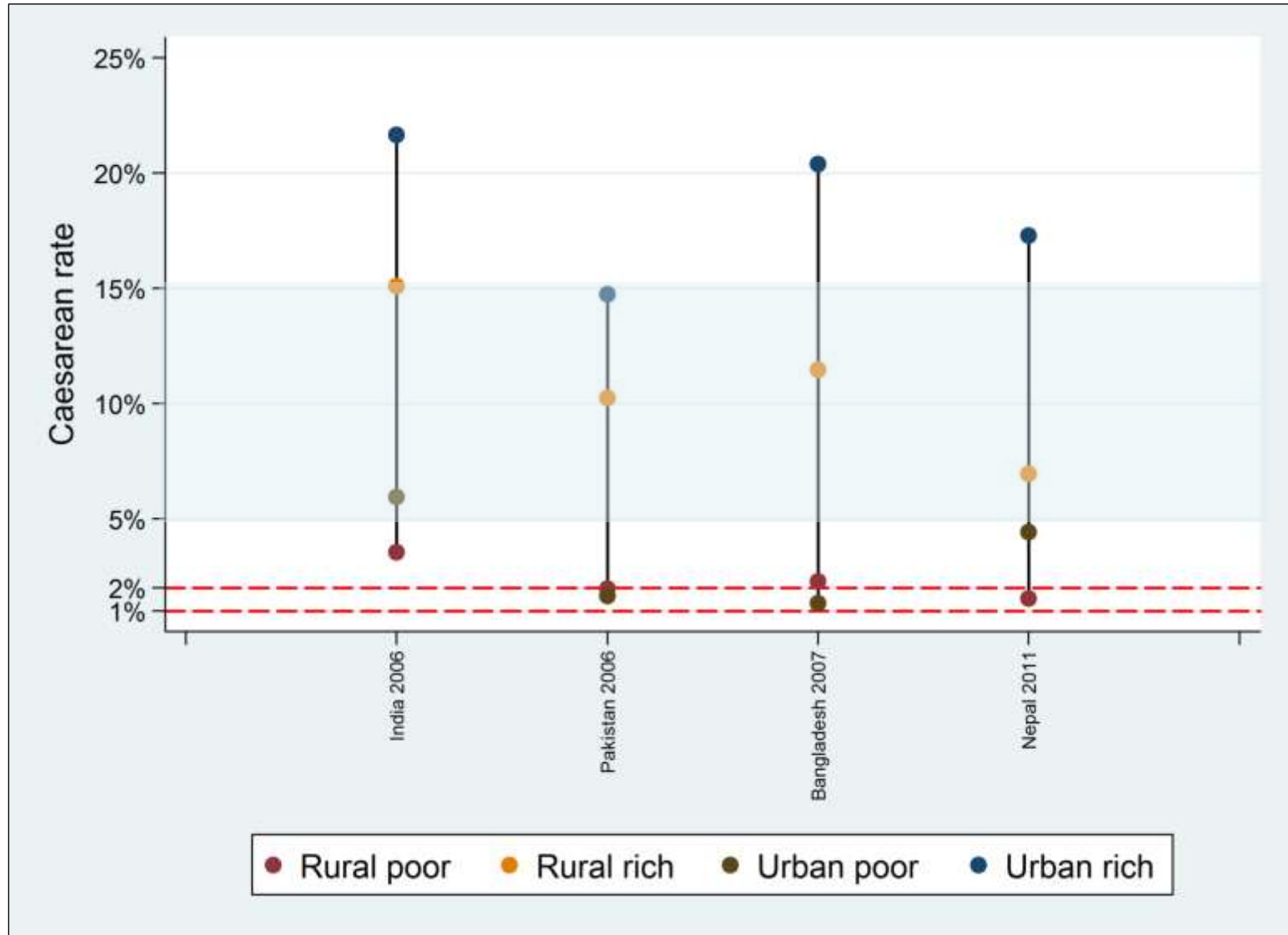
# Eastern & Southern Africa

Caesarean rate by residence and wealth (most recent survey)



# South Asia

Caesarean rate by residence and wealth (most recent survey)



# Key findings

- Eighteen countries remained below 5% nationally
- Poorest 20% have rates below 1% in 12 countries, and below 2% in 21 countries
  - including all 4 South Asian countries
- In 8 countries, the poorest 80% or more had rates below 1%
  - Chad, Guinea, Niger, Nigeria, Ethiopia, Mali, Madagascar, and Mozambique

# Key findings

- Annual increases are extremely low for most countries, particularly for the poorest
- Increasing trends in C-sections are often due to a rise among the better-off, with a resulting widening of inequalities because the poor and rural populations fail to benefit



# Potential solutions

- Increasing demand for facility births
  - Removal of user fees
  - Cash payments to mothers
  - Birth preparedness
  - Addressing cultural barriers to facility birth
- Improving provision of CEmOC
  - Building facilities in rural/poorly-served areas
  - Task shifting
- Continued monitoring of inequalities

# Thank you

- Countdown to 2015 – Pelotas Equity Center (Andréa Dâmaso; Giovanni França)
- John Bradley
- Economic and Social Research Council

**EXTRA SLIDE**

# Very little progress for C-section

