

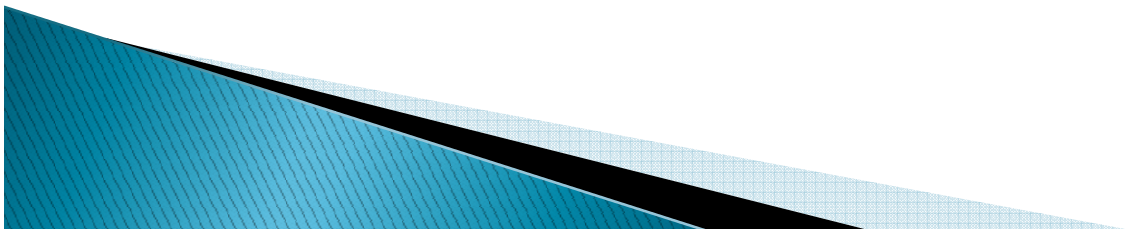
Unfolding Epi-Demo Transition in low- and middle-income countries: evidence from health and demographic surveillance data

Ayaga Bawah on behalf of Demo-Transitions team

Team: Sam Clark, Alioune Diagne, Brian Houle, Cornelius Debpuur, Steve Tollman, Kathy Kahn, Paul Welaga, Nurul Alam, Tran Khanh Toan, Osman Sankoh

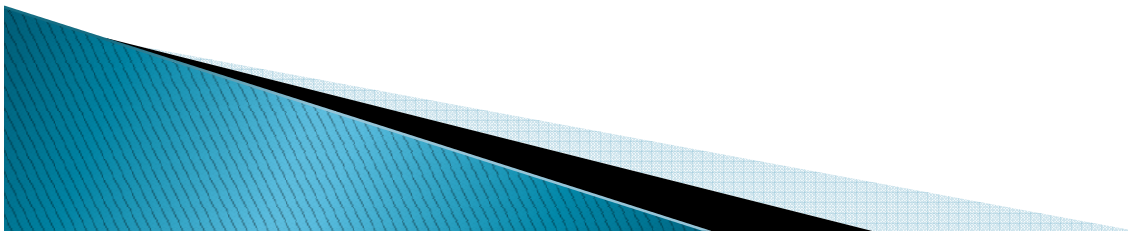
Motivation

- ▶ That epi-demo transition seems underway in Africa and Asia
- ▶ Appears to be different from classical transition theory
- ▶ Longitudinal data from INDEPTH member centres might help us characterize the unfolding transition



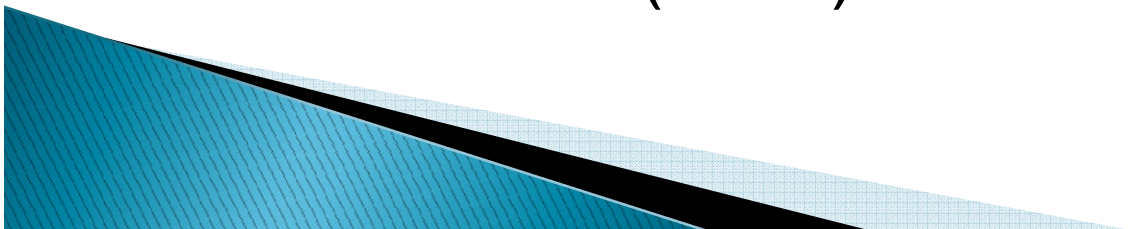
Key objective

Utilize HDSS data to enhance our understanding of epi-demo transition and examine the implications for the health systems



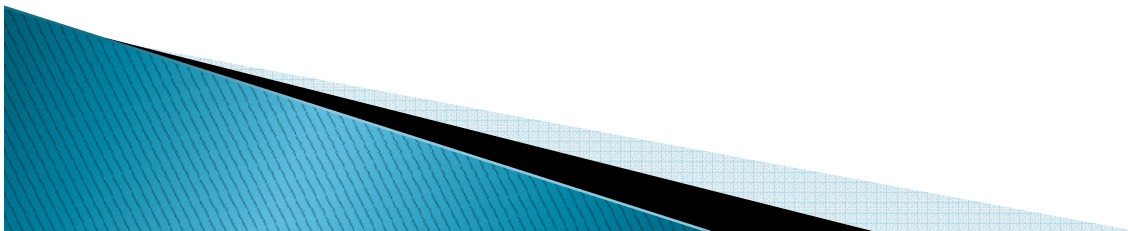
Data and methods

- ▶ We used fertility and mortality data generated from HDSS to examine long-term trends in fertility and mortality
- ▶ Examined structural changes in the age-patterns of mortality and fertility
- ▶ Four HDSS involved in the project – Agincourt and Navrongo (Africa) and Matlab and Filabavi (Asia)

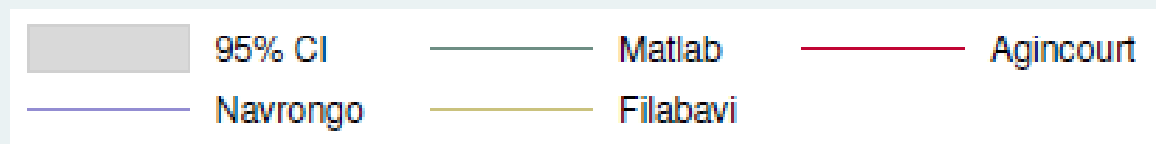
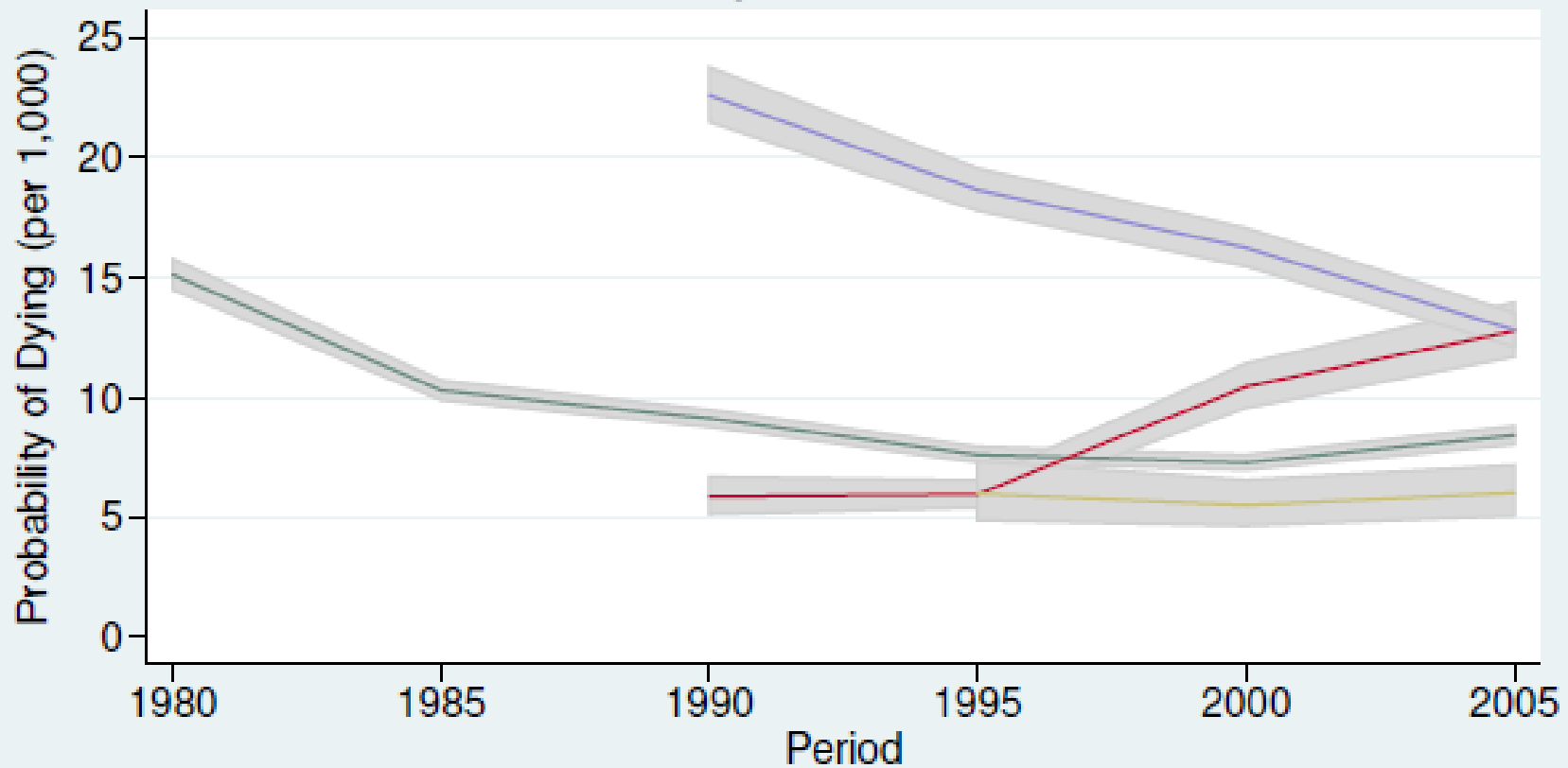


Results

Trends in All-cause mortality

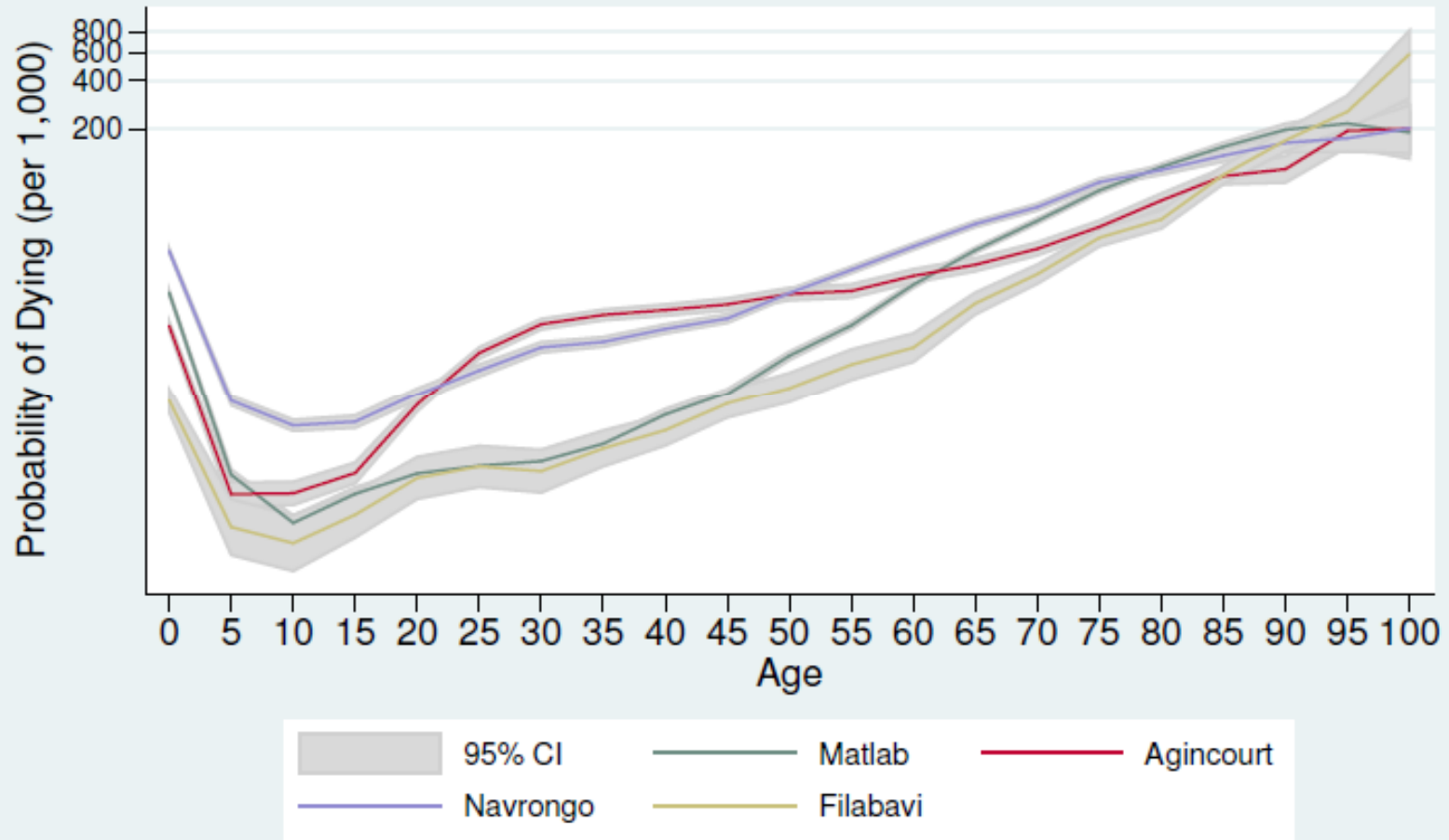


Predicted Probability of Dying by Period By All Causes

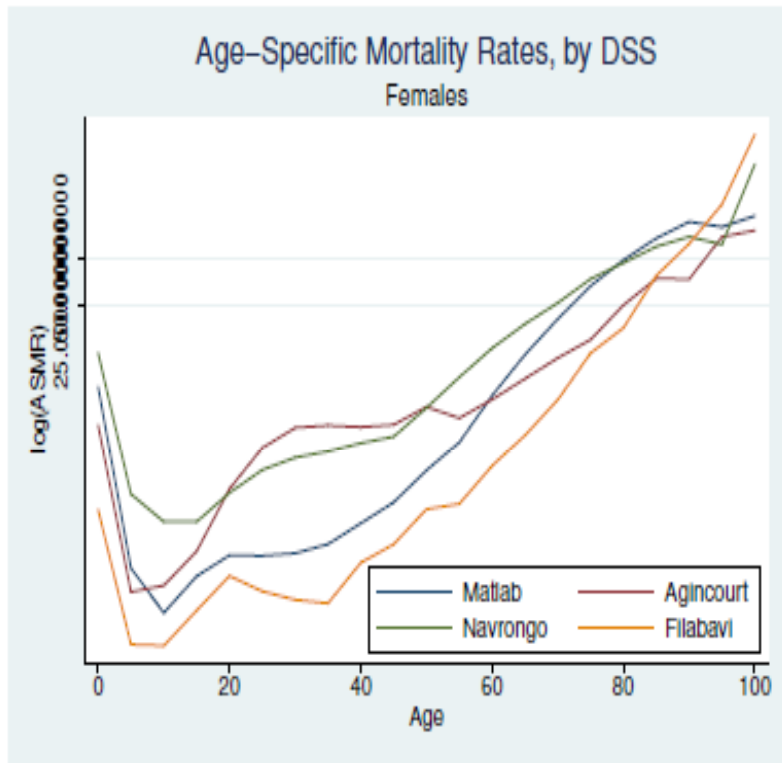


Stratified logistic regressions by site on sex, age, and time

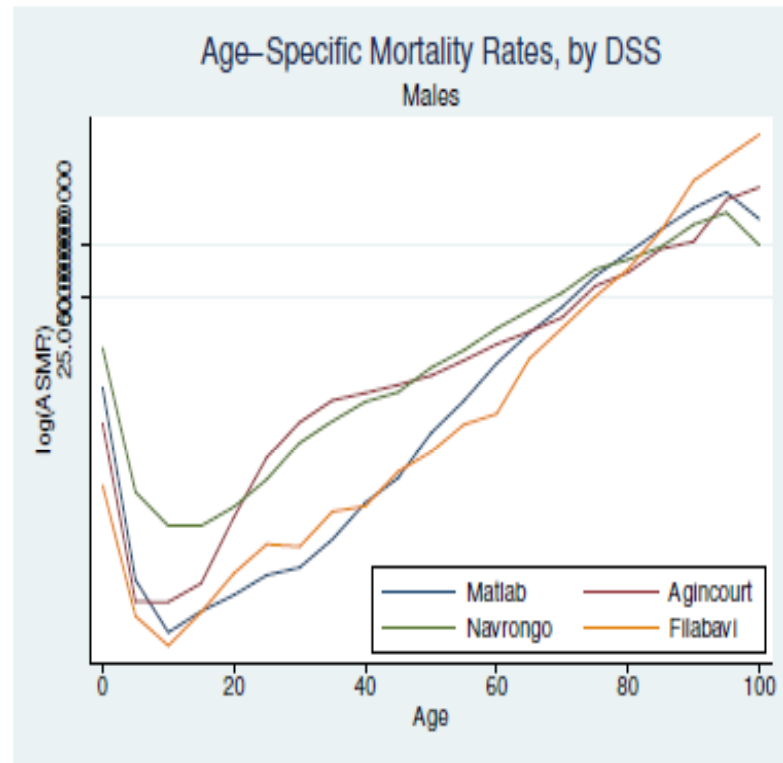
Predicted Probability of Dying by Age By All Causes



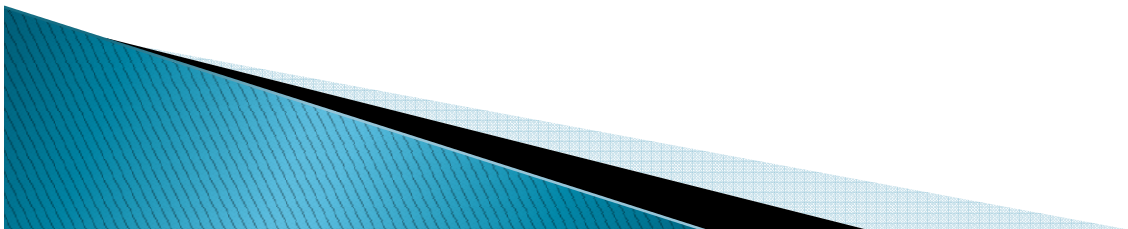
Stratified logistic regressions by site on sex, age, and time

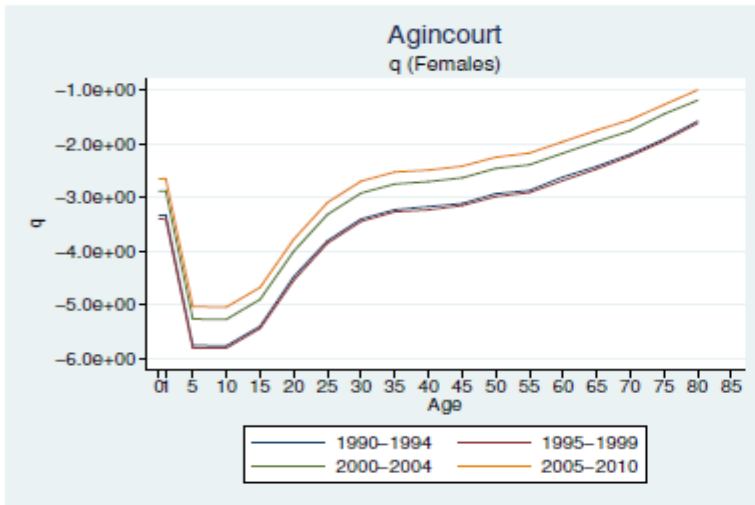


(a) Female

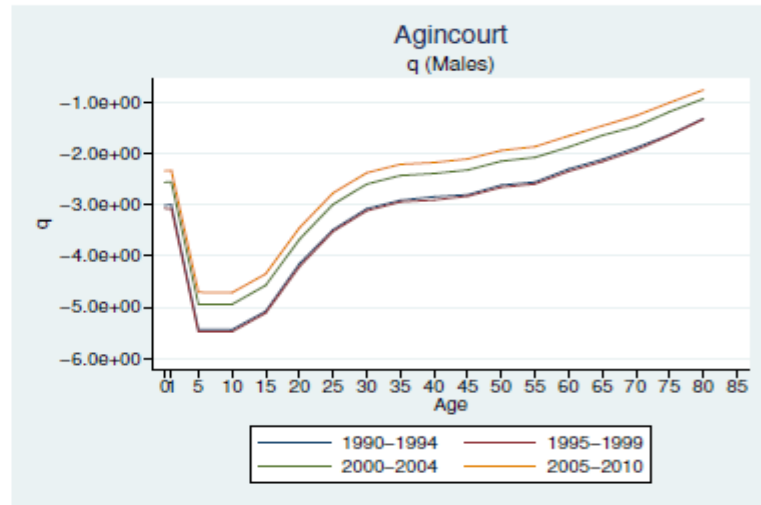


(b) Male

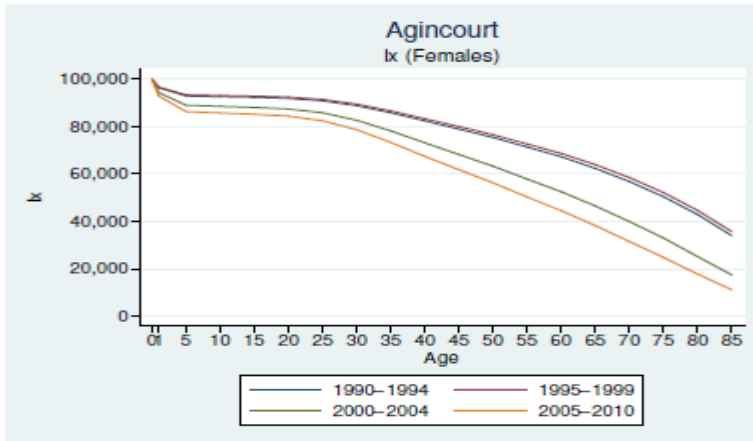




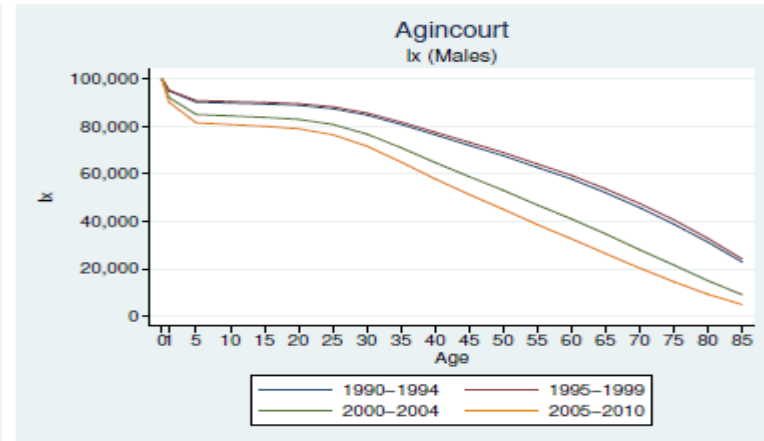
(a) Females



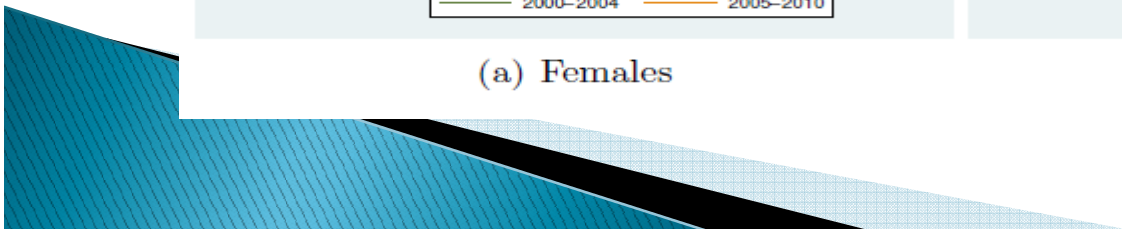
(b) Males

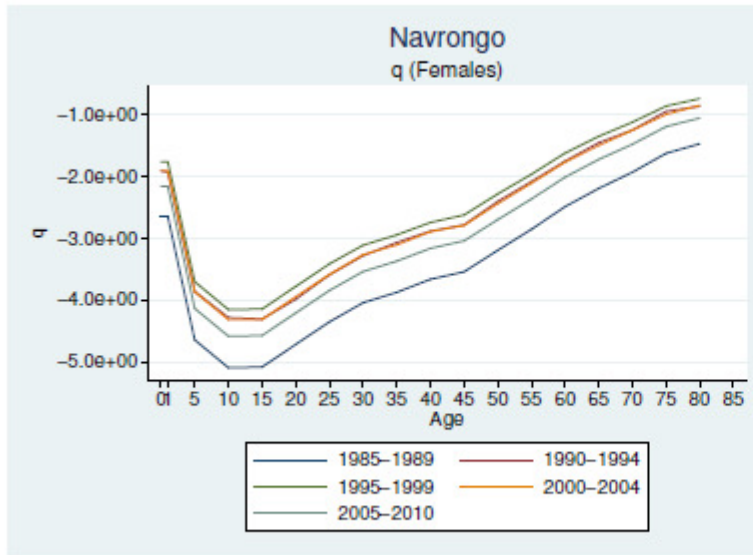


(a) Females

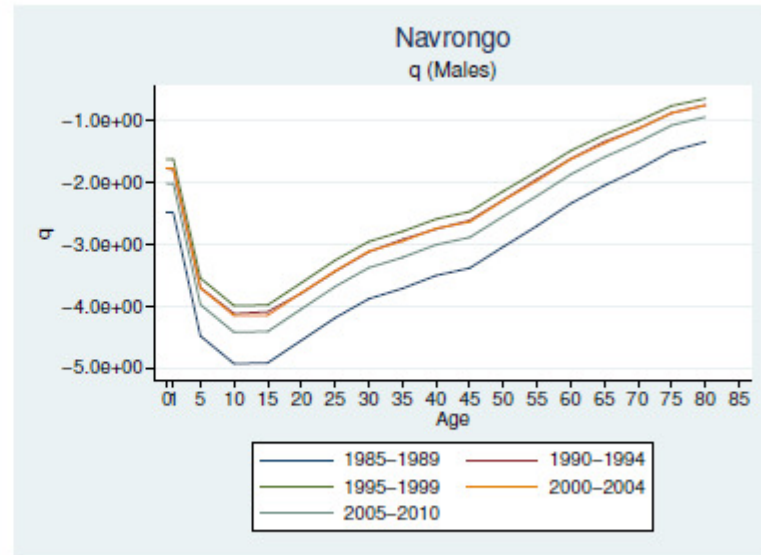


(b) Males

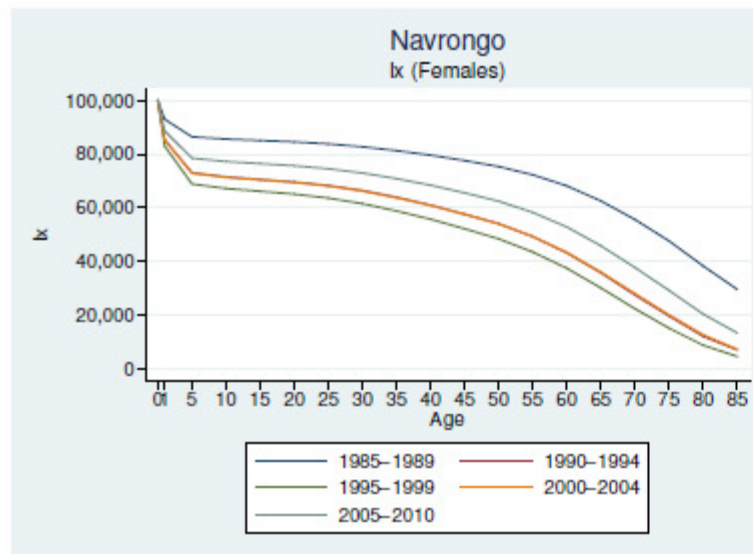




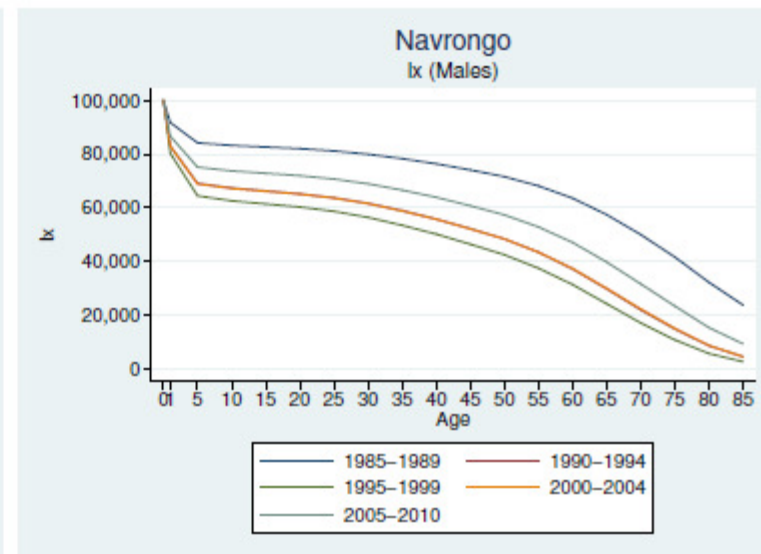
(a) Females



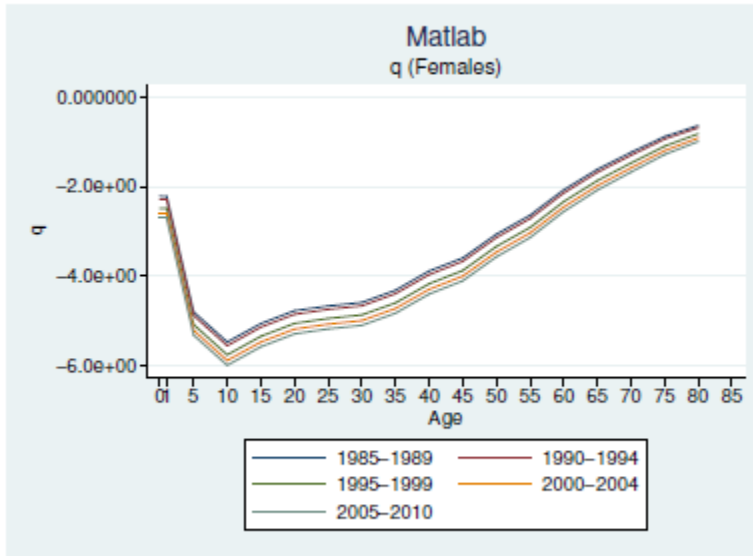
(b) Males



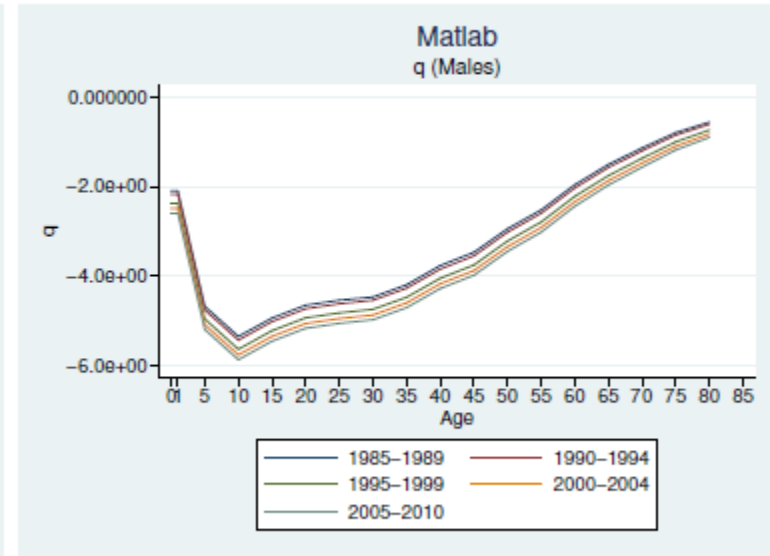
(a) Females



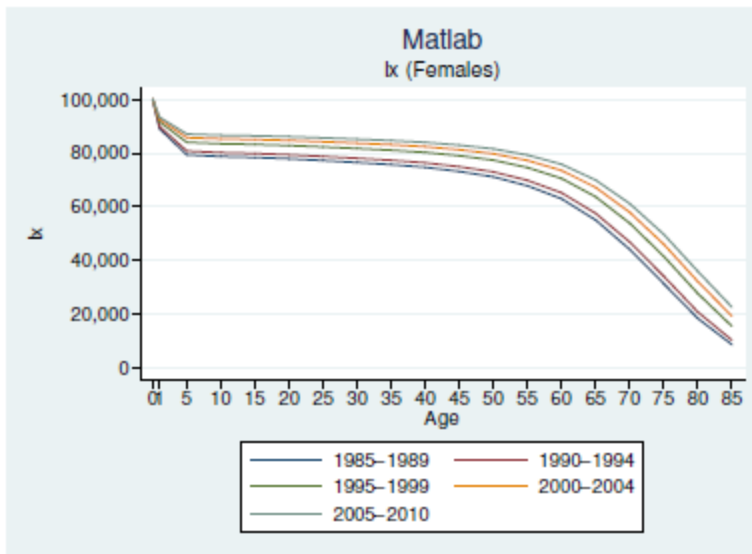
(b) Males



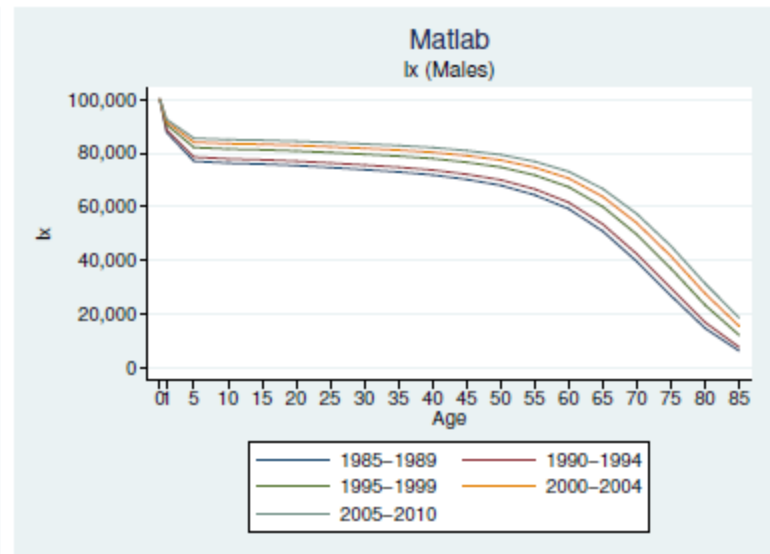
(a) Females



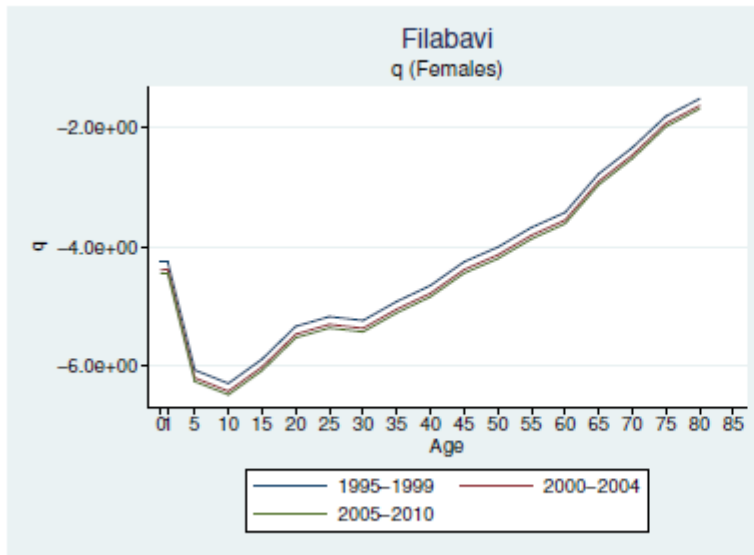
(b) Males



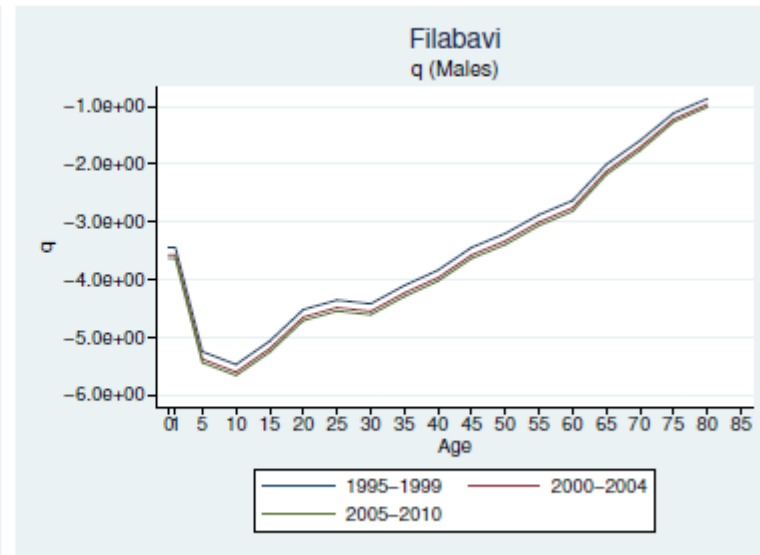
(a) Females



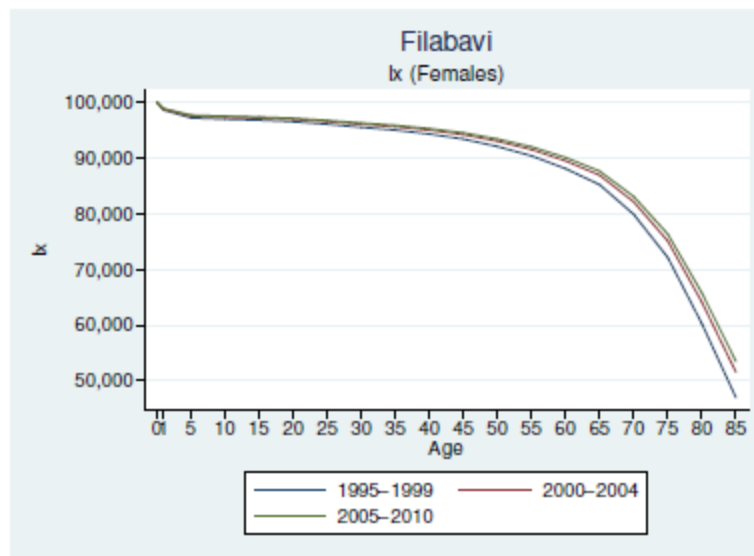
(b) Males



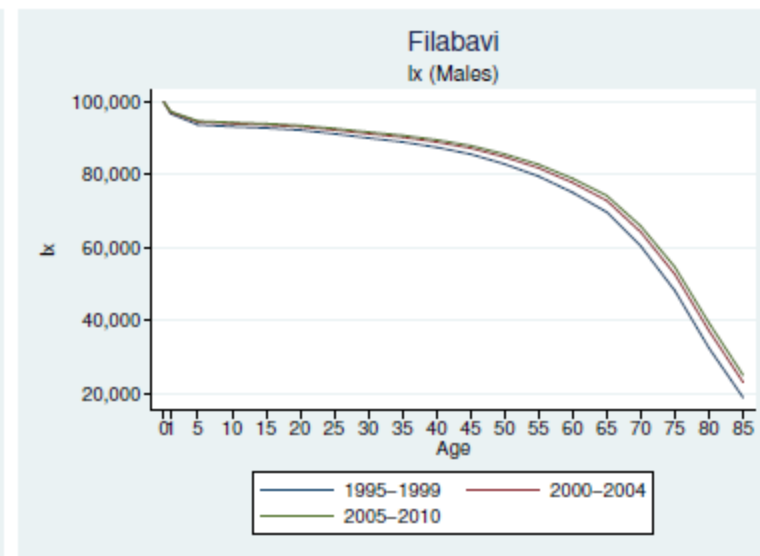
(a) Females



(b) Males

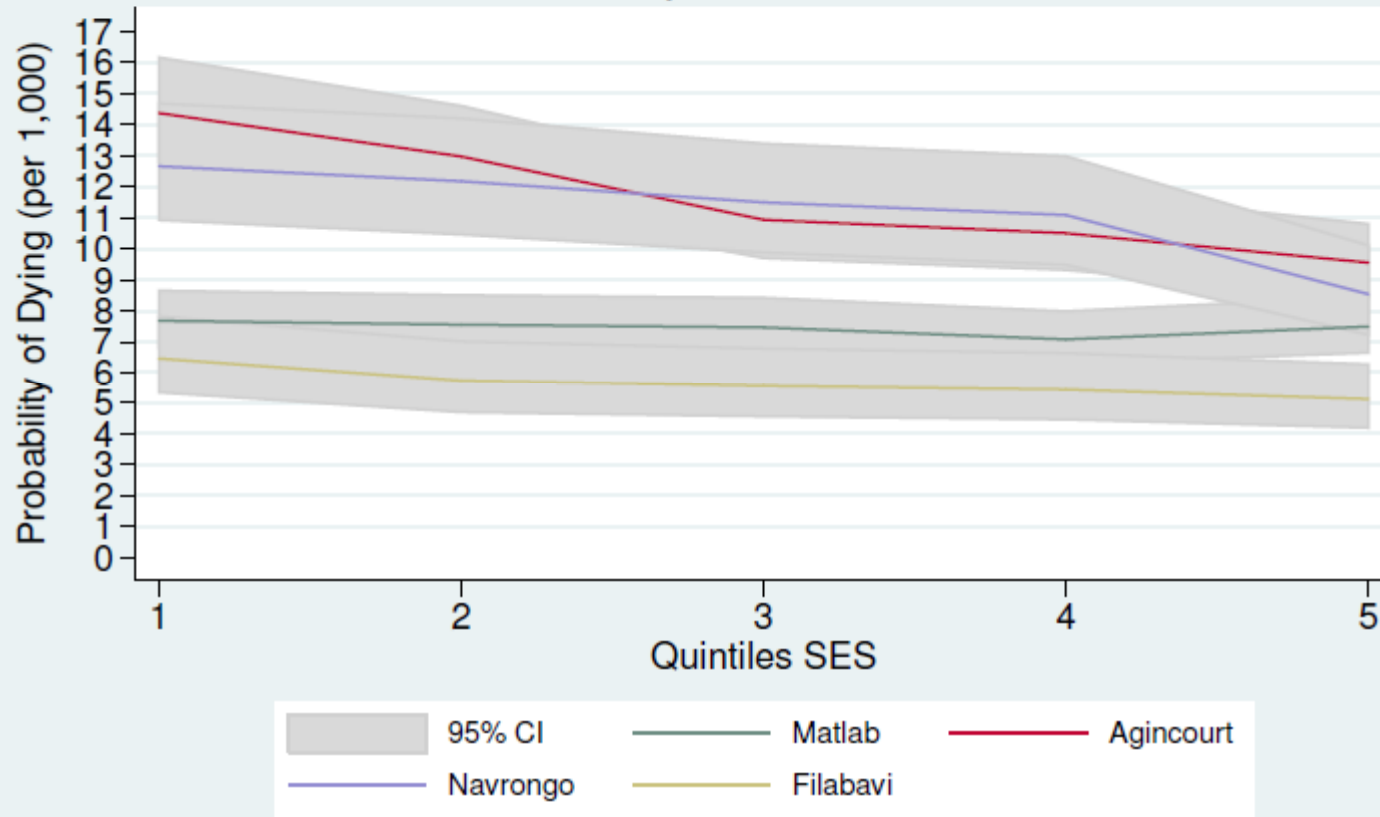


(a) Females



(b) Males

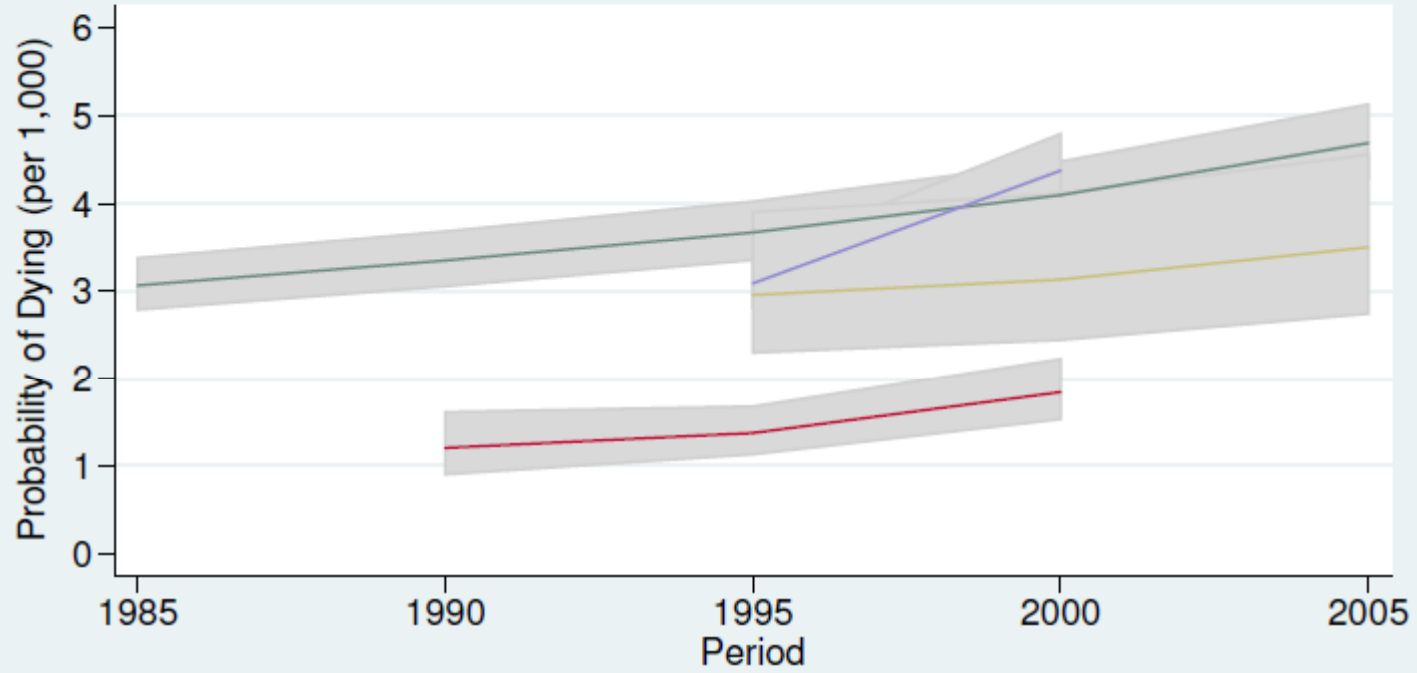
Predicted Probability of Dying by SES By All Causes



Stratified logistic regressions by site on sex, age, time, and SES quintiles

Trends in causes of death by age

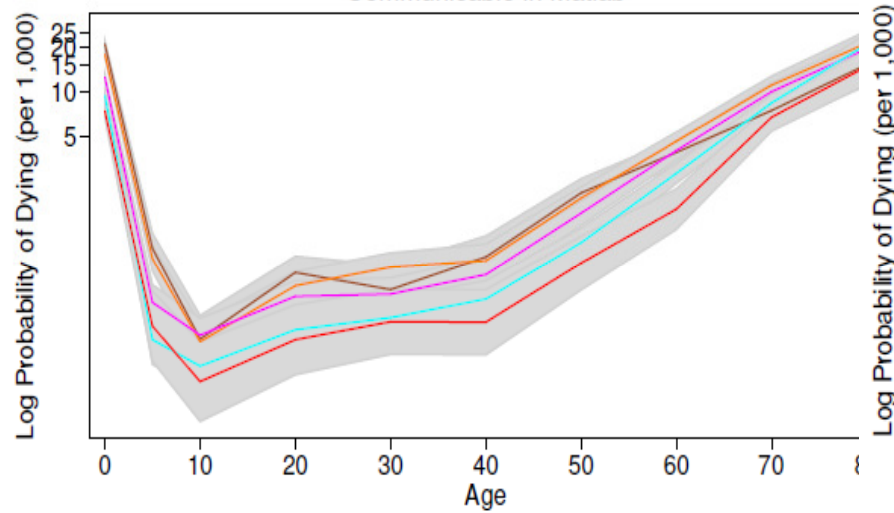
Predicted Probability of Dying by Period by Noncommunicable



95% CI Matlab Agincourt
Navrongo Filabavi

Stratified multinomial logistic regressions by site on sex, age, and time

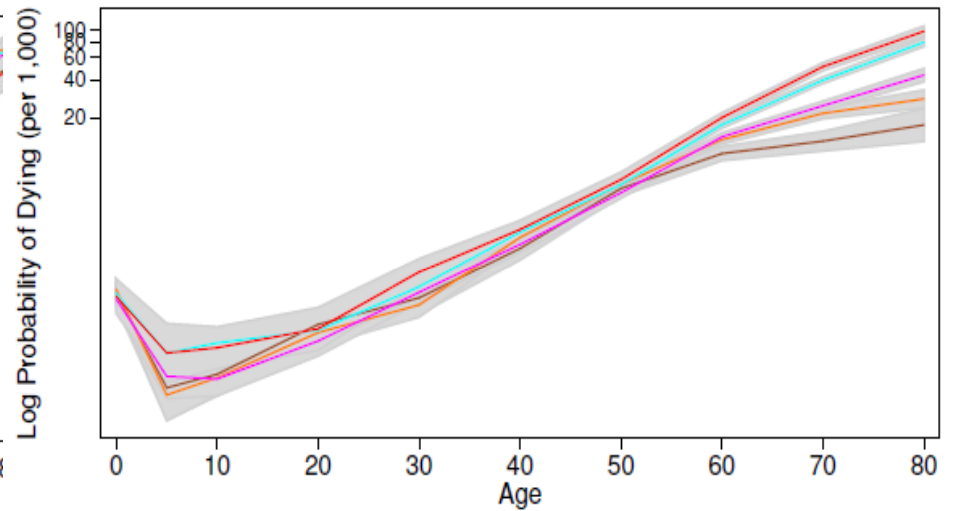
Predicted Probability of Dying by Age Over Time
Communicable in Matlab



95% CI
 1985-1989
 1990-1994
 1995-1999
 2000-2004
 2005-2009

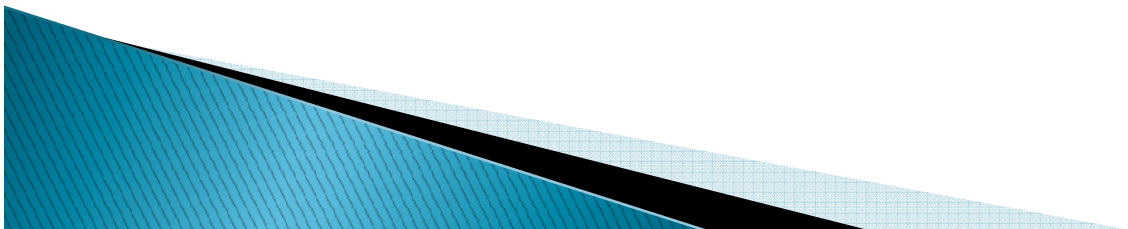
Multinomial logistic regressions on sex, age, and time

Predicted Probability of Dying by Age Over Time
Noncommunicable in Matlab

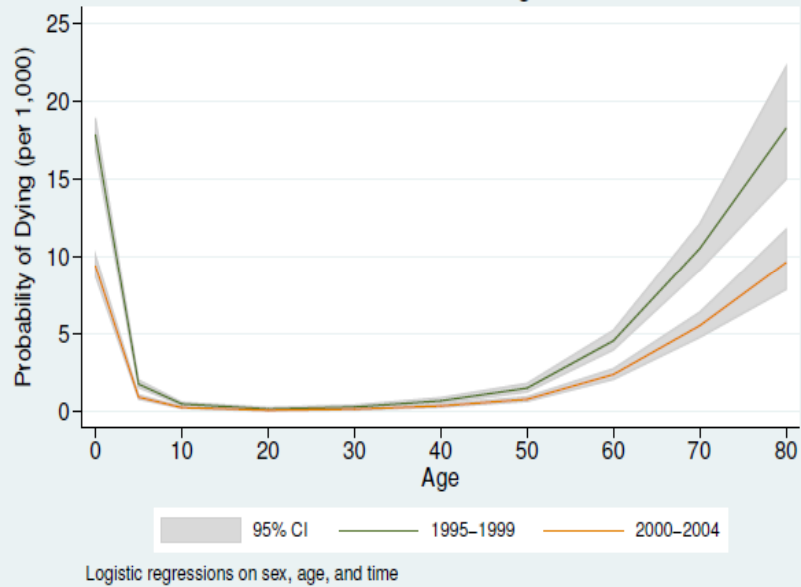


95% CI
 1985-1989
 1990-1994
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 2000-2004
 2005-2009

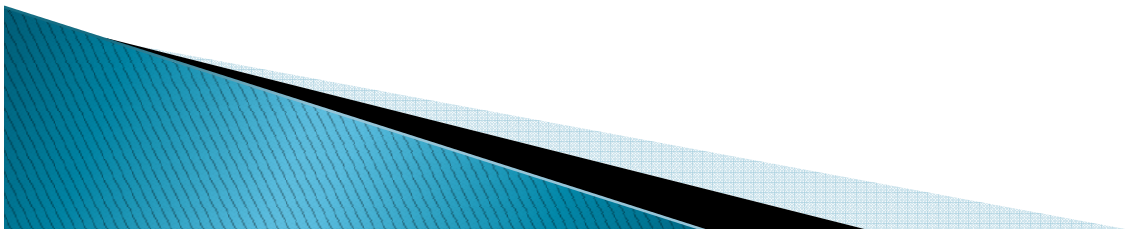
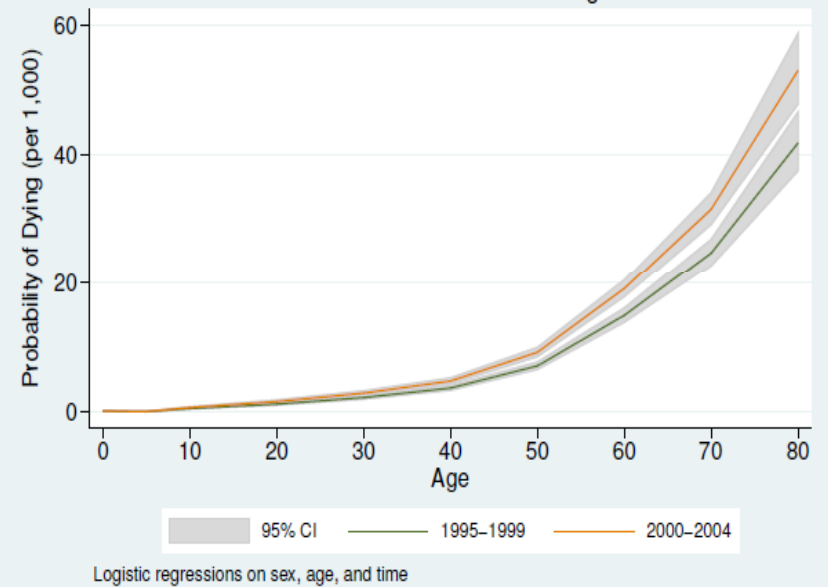
Multinomial logistic regressions on sex, age, and time



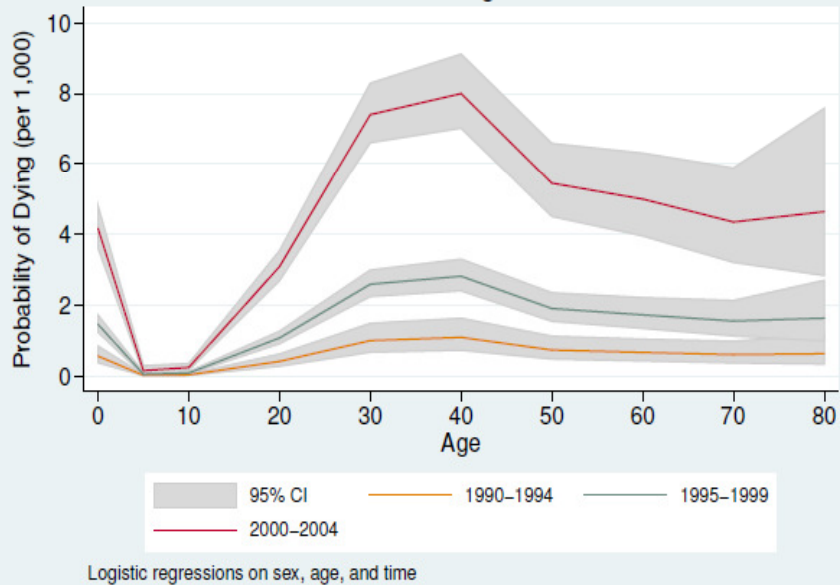
Predicted Probability of Dying by Age Over Time
Malaria in Navrongo



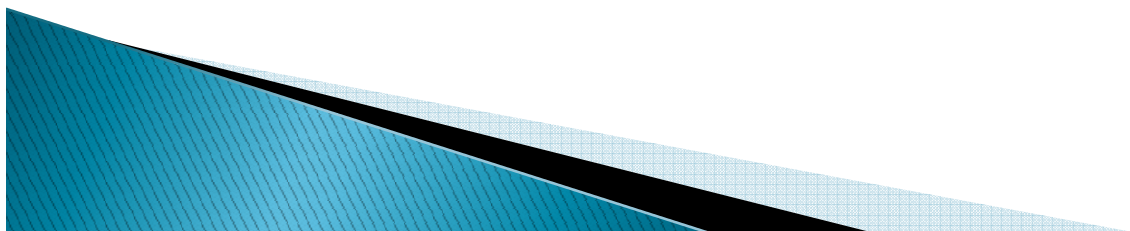
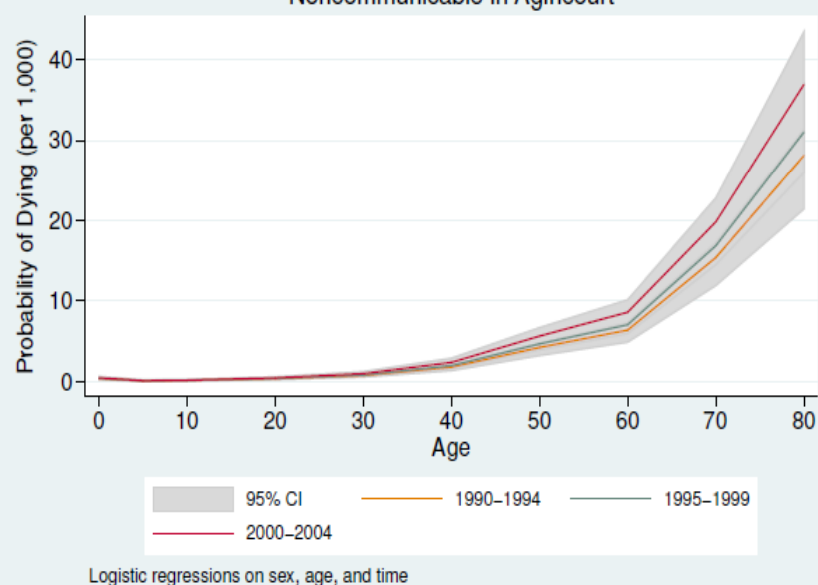
Predicted Probability of Dying by Age Over Time
Noncommunicable in Navrongo



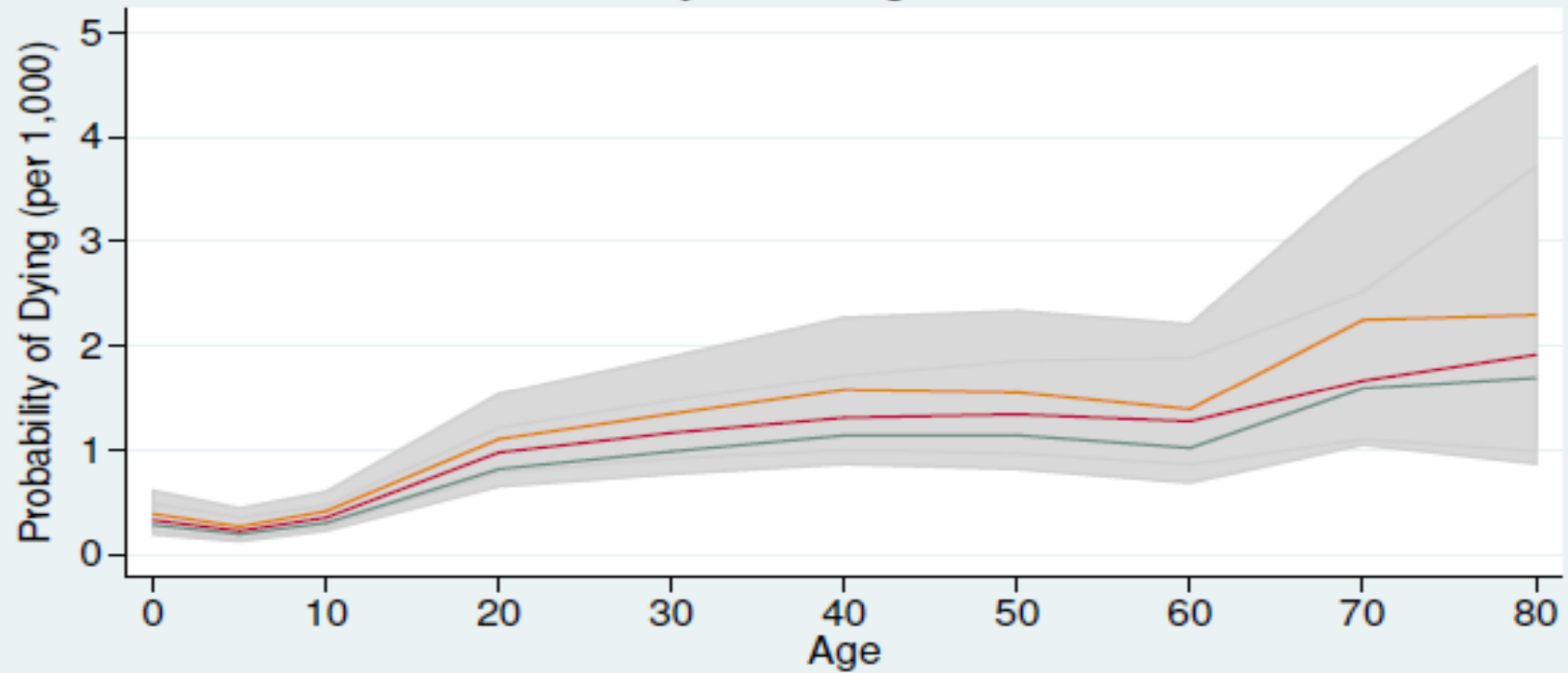
Predicted Probability of Dying by Age Over Time
HIV/TB in Agincourt



Predicted Probability of Dying by Age Over Time
Noncommunicable in Agincourt



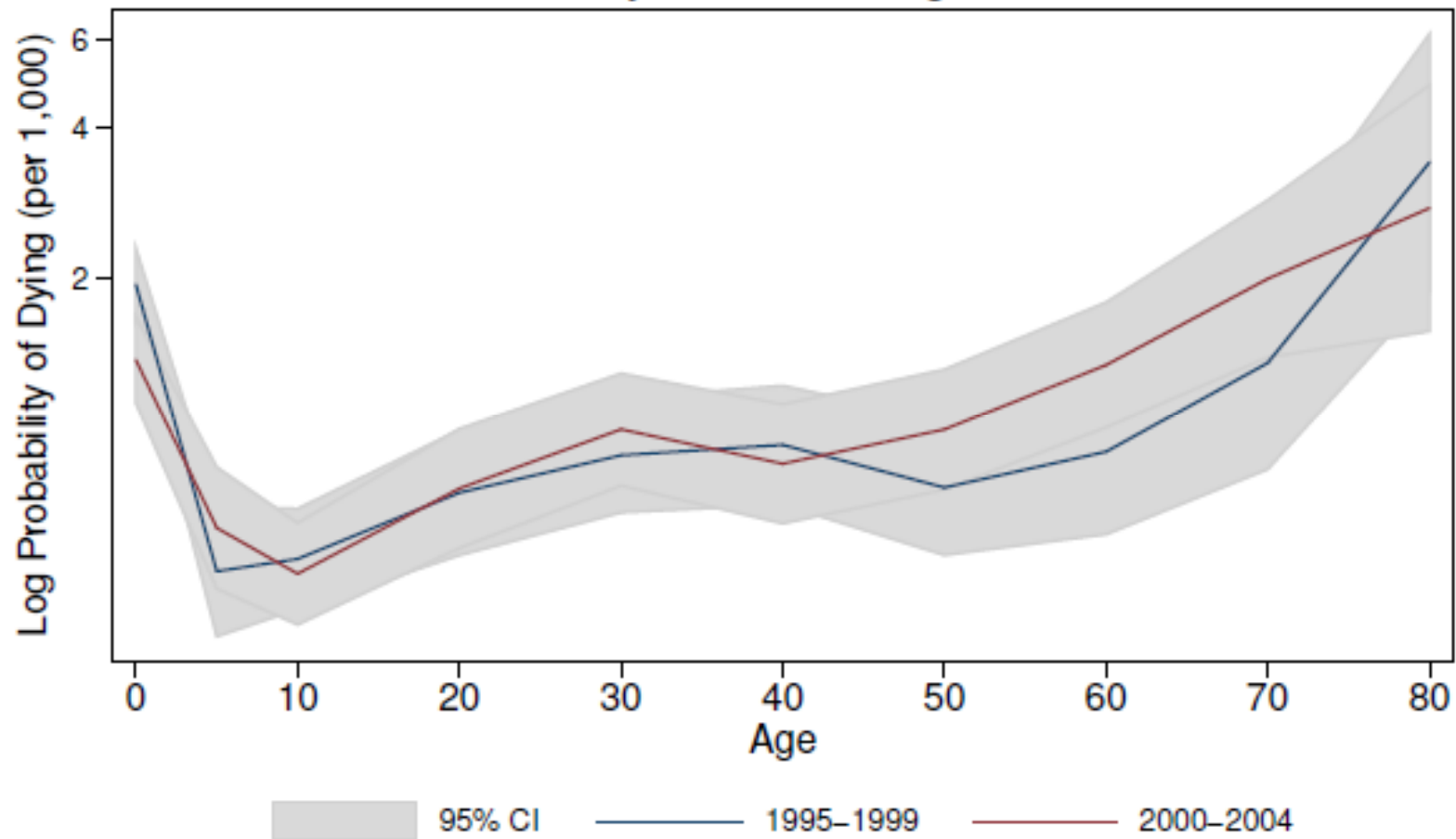
Predicted Probability of Dying by Age Over Time Injuries in Agincourt



95% CI 1990-1994 1995-1999
2000-2004

Logistic regressions on sex, age, and time

Predicted Probability of Dying by Age Over Time Injuries in Navrongo

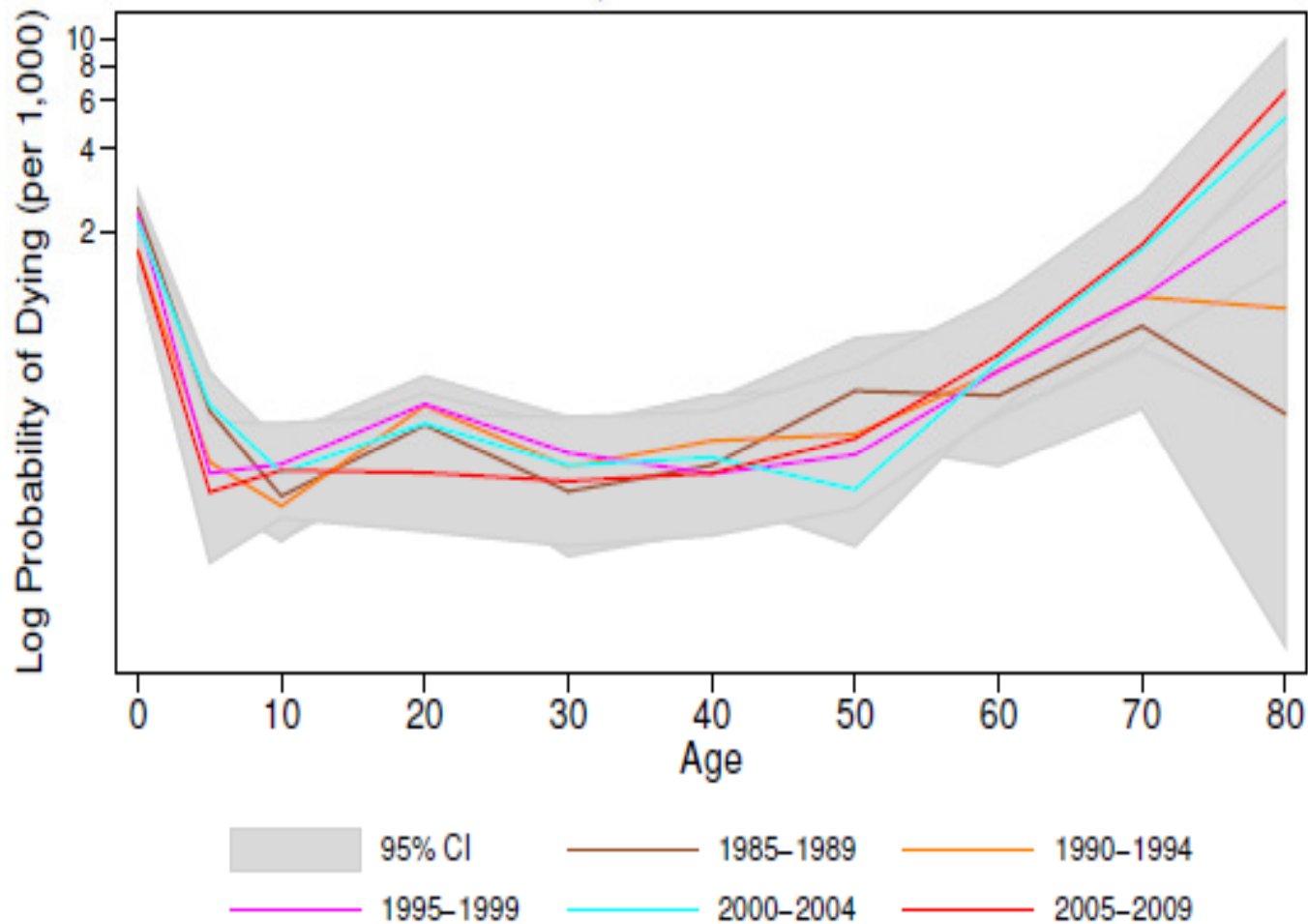


Multinomial logistic regressions on sex, age, and time



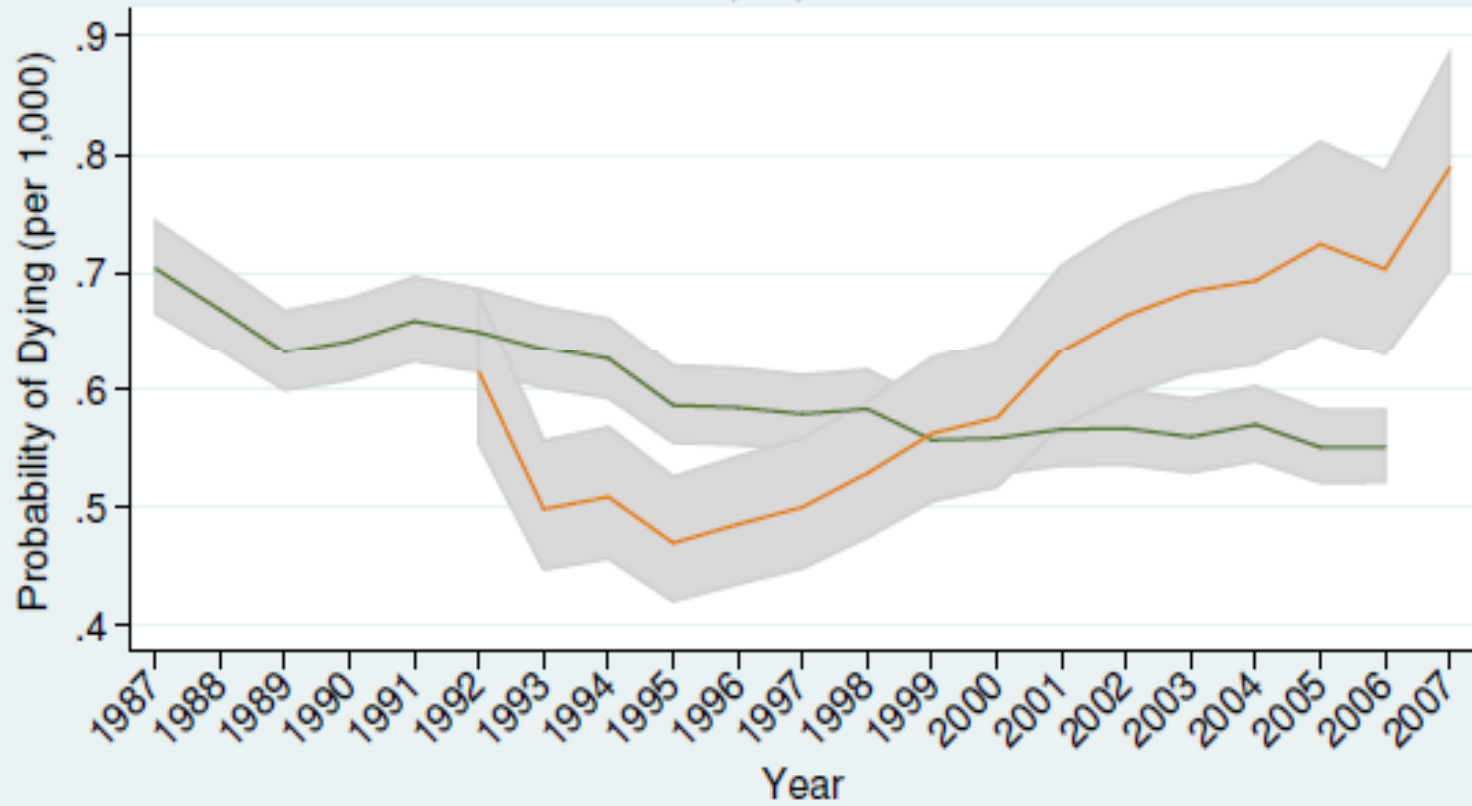
Predicted Probability of Dying by Age Over Time

Injures in Matlab



Multinomial logistic regressions on sex, age, and time

Predicted Probability of Dying by Year by Injuries

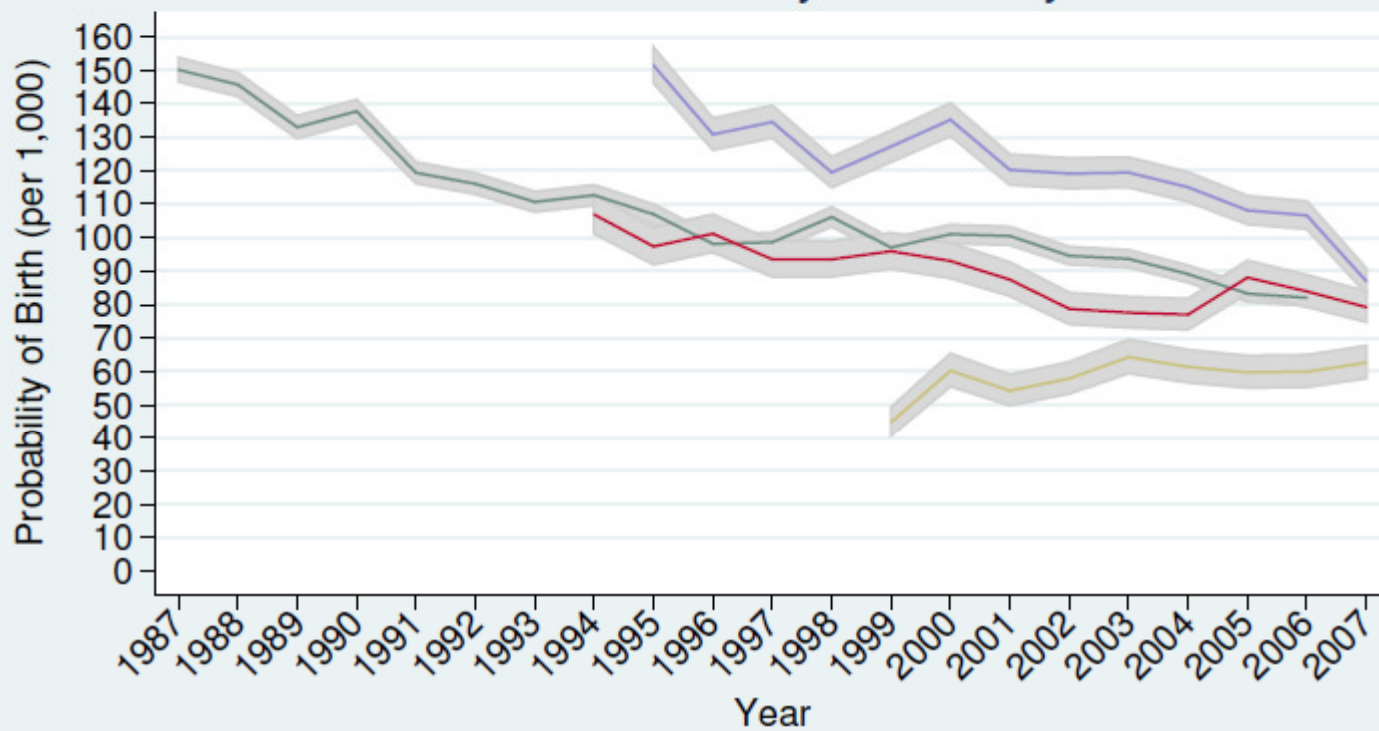


95% CI Matlab Agincourt

Fertility



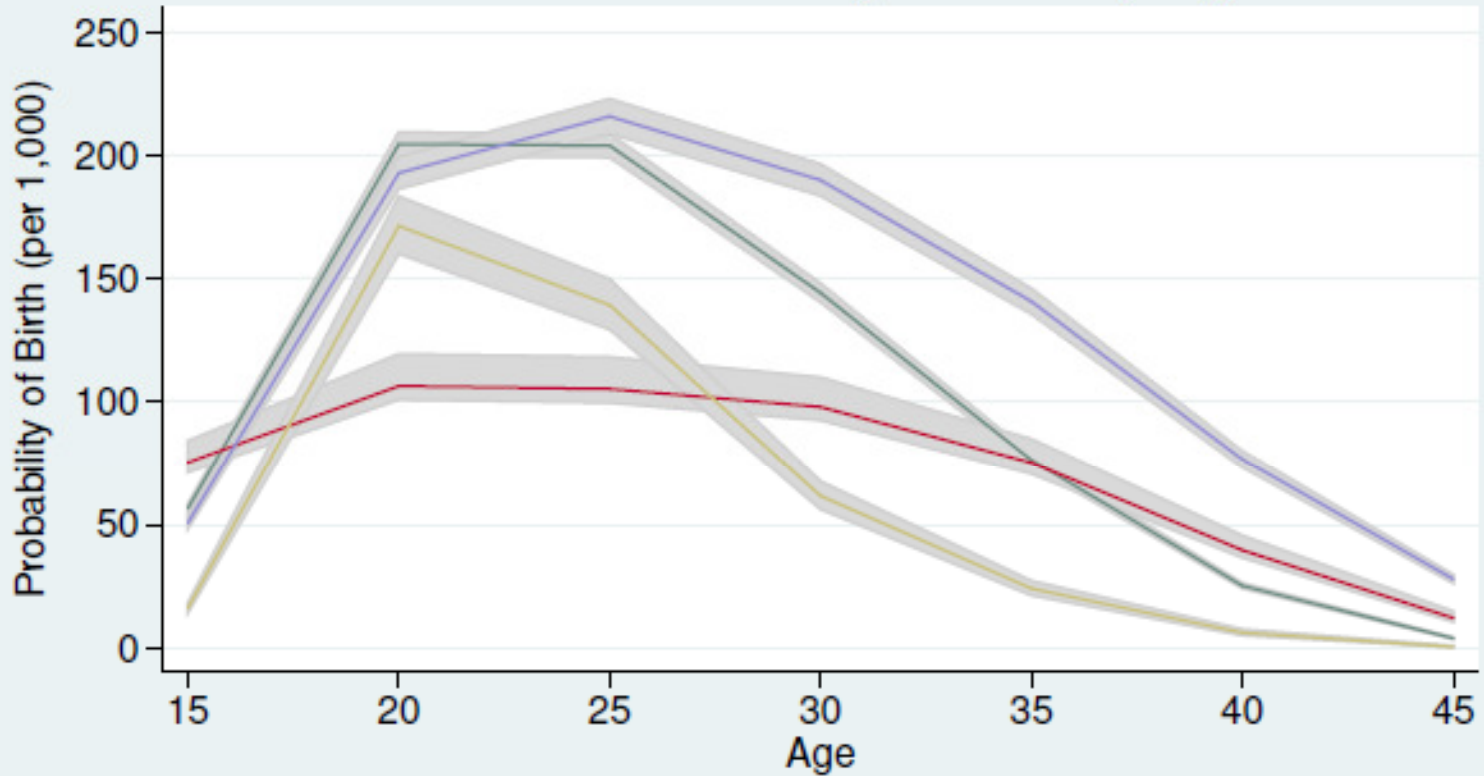
Predicted Probability of Birth by Year



95% CI Matlab Agincourt
Navrongo Filabavi

Stratified logistic regressions by site on age and time

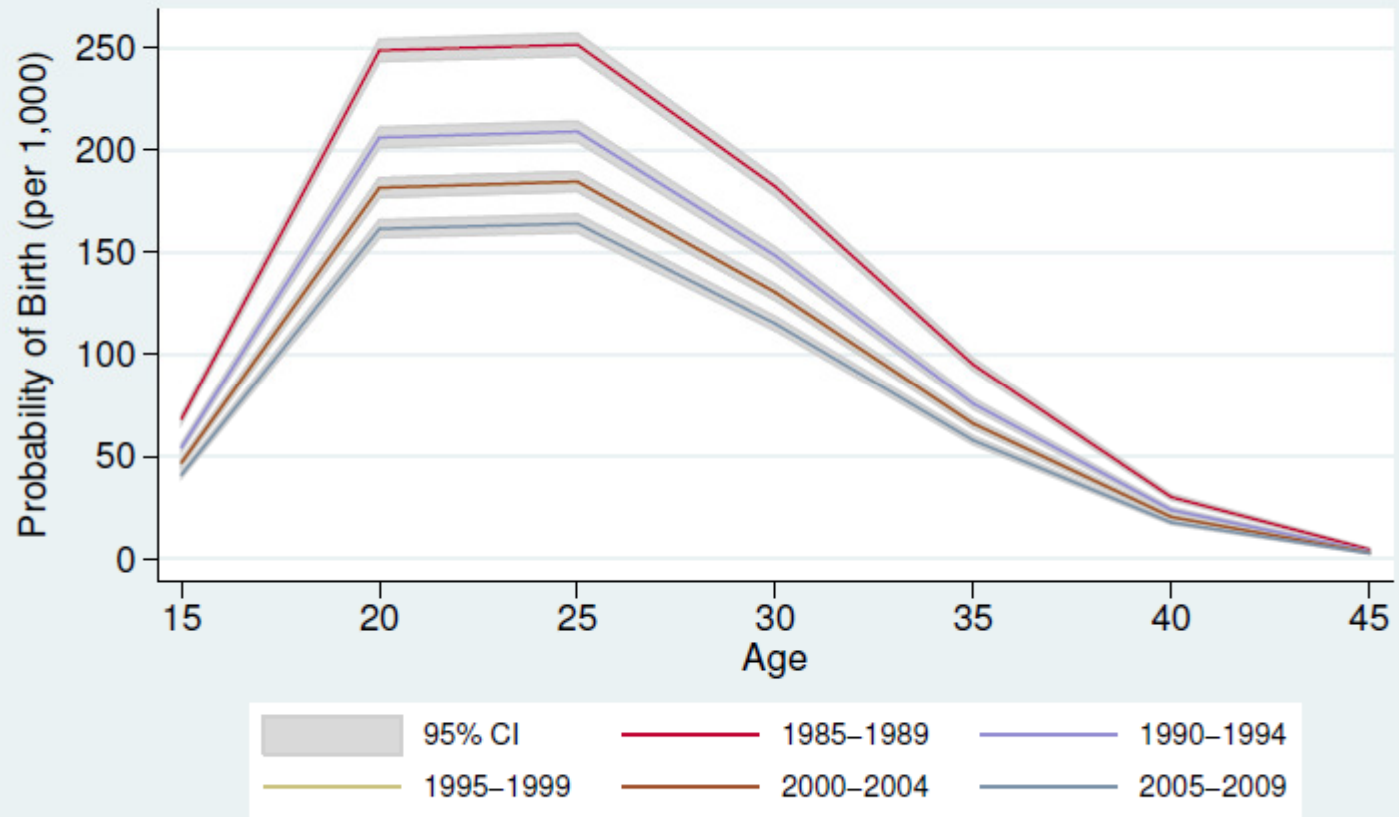
Predicted Probability of Birth by Age



95% CI Matlab Agincourt
Navrongo Filabavi

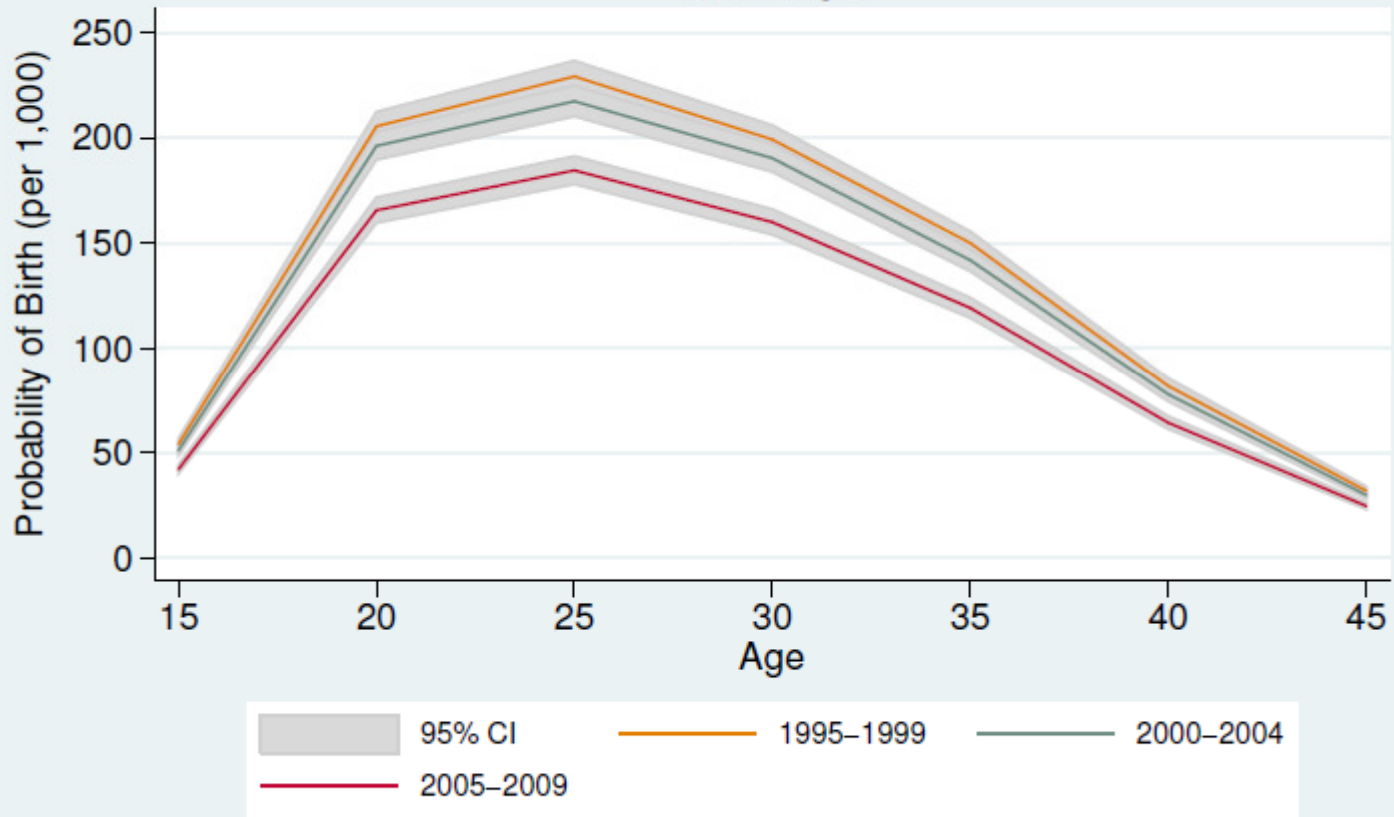
Stratified logistic regressions by site on age and time

Predicted Probability of Birth by Age and Time Matlab



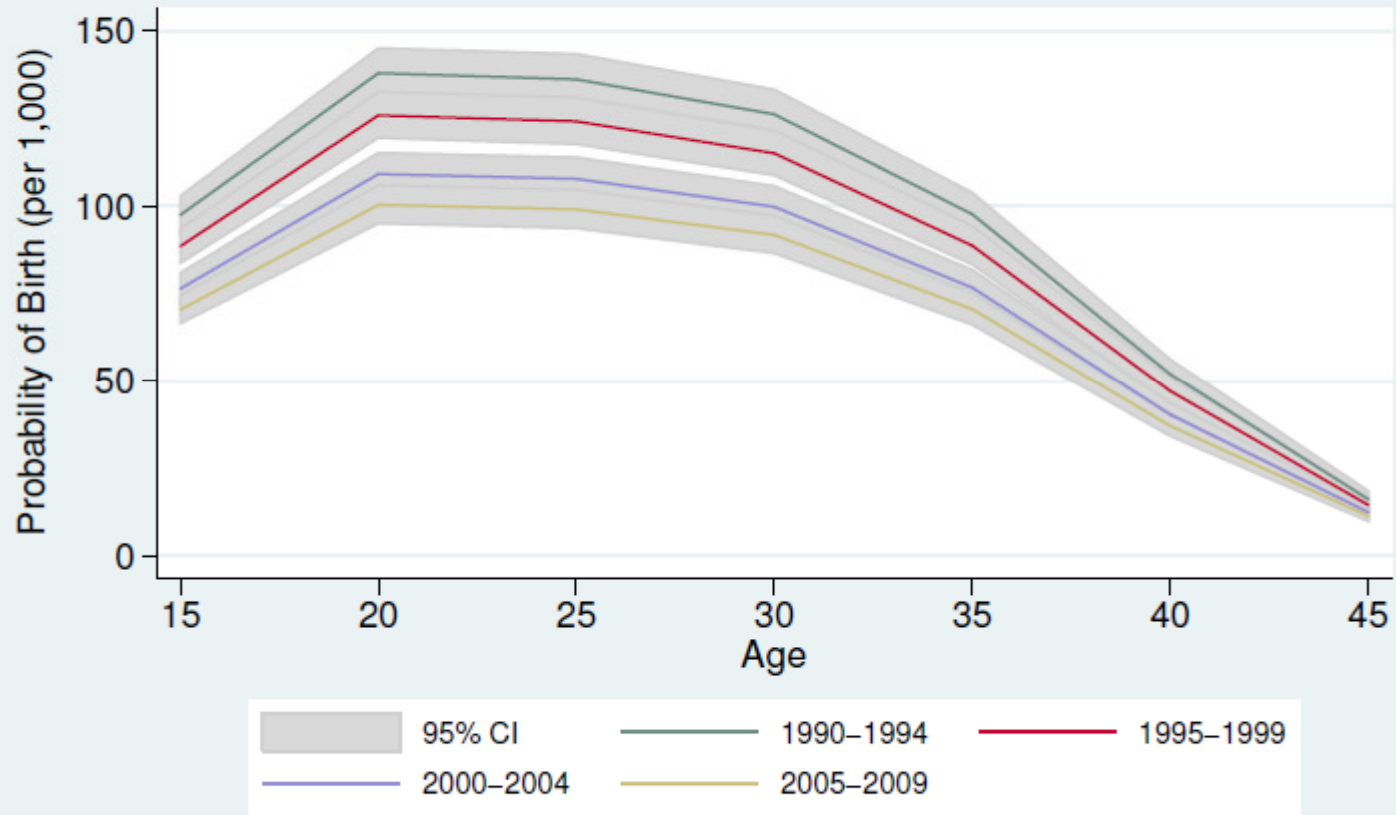
Stratified logistic regressions by site on age and time

Predicted Probability of Birth by Age and Time Navrongo



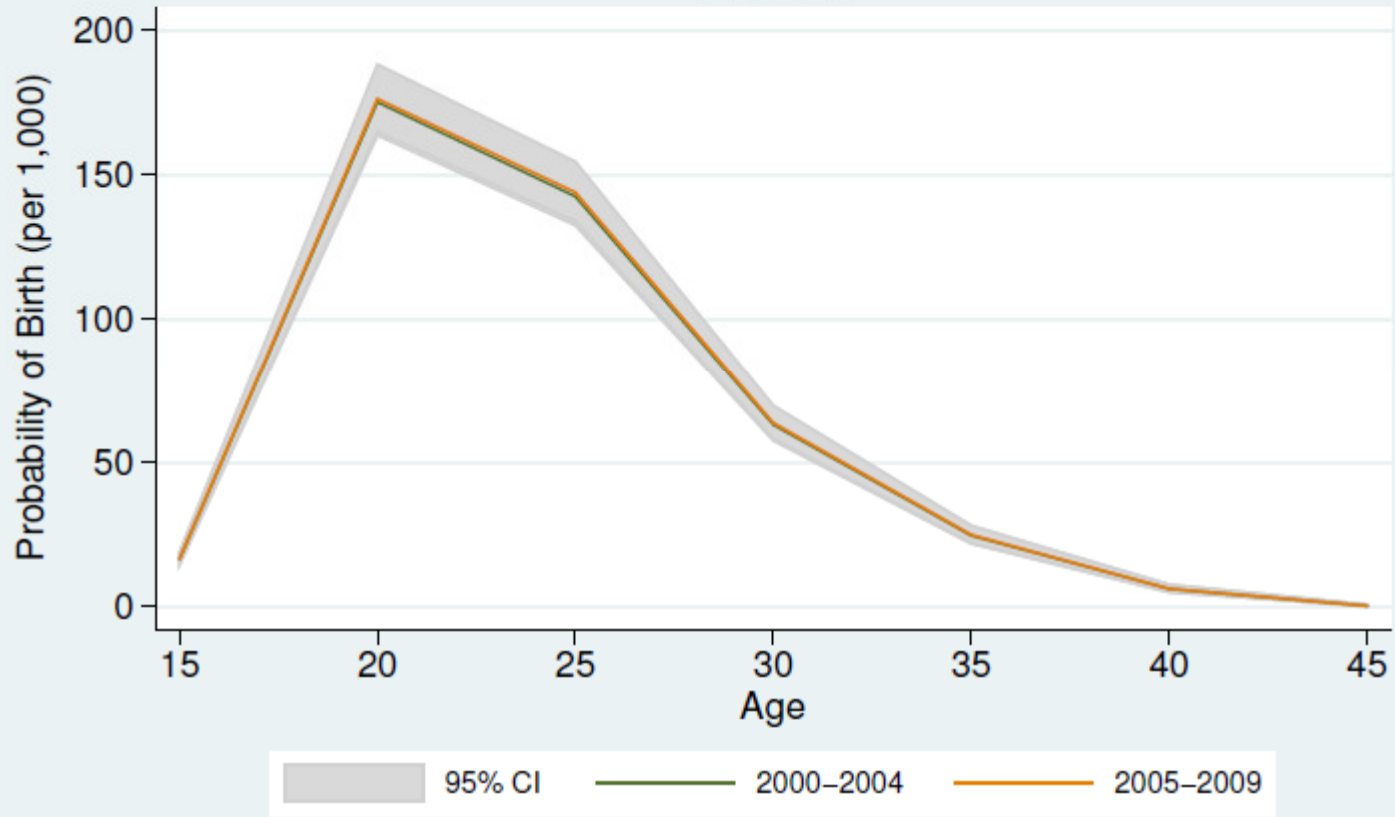
Stratified logistic regressions by site on age and time

Predicted Probability of Birth by Age and Time Agincourt



Stratified logistic regressions by site on age and time

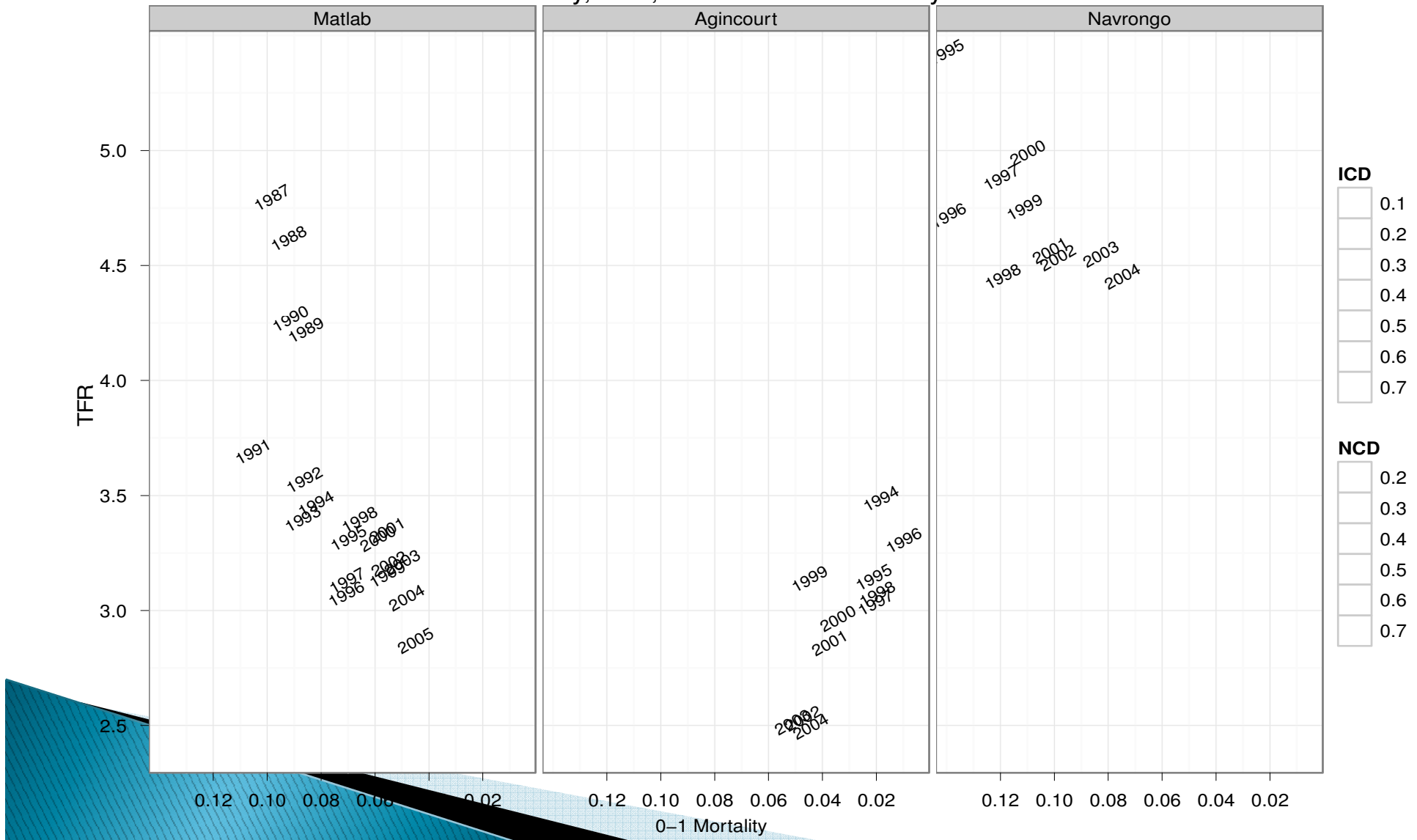
Predicted Probability of Birth by Age and Time Filabavi



Stratified logistic regressions by site on age and time

Integrating fertility, infant mortality and cause-of-death over time

Relation of 0–1 Mortality, TFR, and Cause of Death by Site Over Time



Some Observations

- ▶ Epi-demo transition clearly underway
- ▶ Different from classical transition -triple burden of disease observed –
 - Non-communicable diseases on the rise while communicable diseases still remain high
 - injury mortality on the rise
- ▶ Compared to Asia sub-Saharan Africa has relatively higher levels of disease burden
- ▶ Fertility levels on the decline but levels in sub-Saharan Africa still quite high



Acknowledgments

- ▶ We are grateful to the International Development Research Centre (IDRC) for

