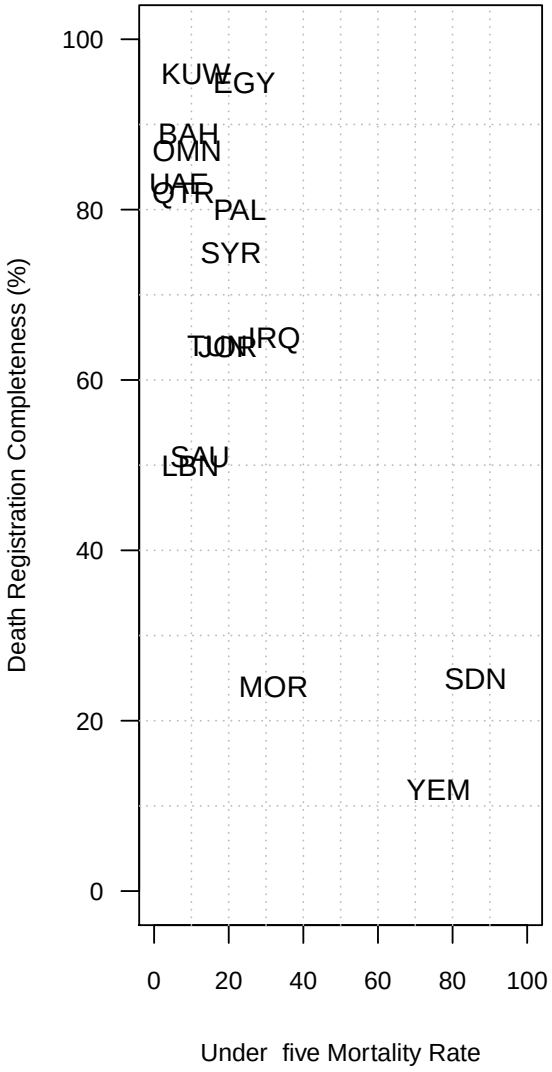
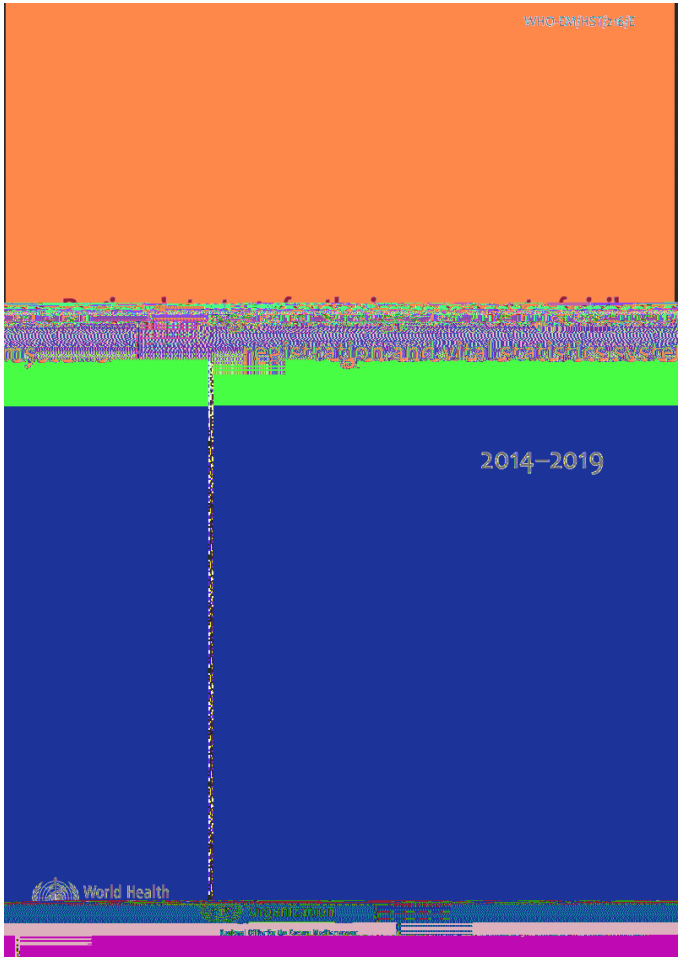
Outline

- Status of CRVS systems + mortality estimation in Western Asia
- Regional strategy for CRVS systems improvements
- Completeness assessment case studies: Kuwait & Morocco
- Methodological limitations & next steps

Mortality & Registration Paradox



2014-2019 Regional Strategy: WHO-EMRO & UN-ESCWA Focus



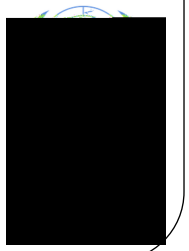
- Strengthen the registration infrastructure and capacities
- Improve production, use and dissemination of vital statistics
- Improve inter-sectoral coordination and alignment among stakeholders
- Strengthen and harmonize regional and global partnerships in support of country strategies

Current Approaches to CRVS Completeness (& Quality) Assessment

1. **Self-reporting in HH surveys**
   - Reporting bias due to terminological differences
   - Reporting bias due to social desirability
2. **Comparison of registered deaths to E(deaths)**
   - Misalignment between reference populations
   - Large sampling errors
3. **Indirect demographic estimation: Death Distribution Methods**
   - **Strong assumptions:** [1] closed population, [2] completeness of recording of deaths is constant by age, [3] the completeness of recording of population is constant by age, & [4] error-free age reporting
   - Non-negligible uncertainty intervals (Murray et al., PLoSMed-2013)
4. **Record-Linkage**
   - Labor intensive & Technically challenging

Data & Methods

- Apply different variants of death distribution methods (DDMs) to data on national populations:
  - method uses the observed population growth rates, the observed birth rate and the observed death



Data & Methods

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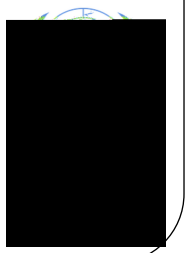
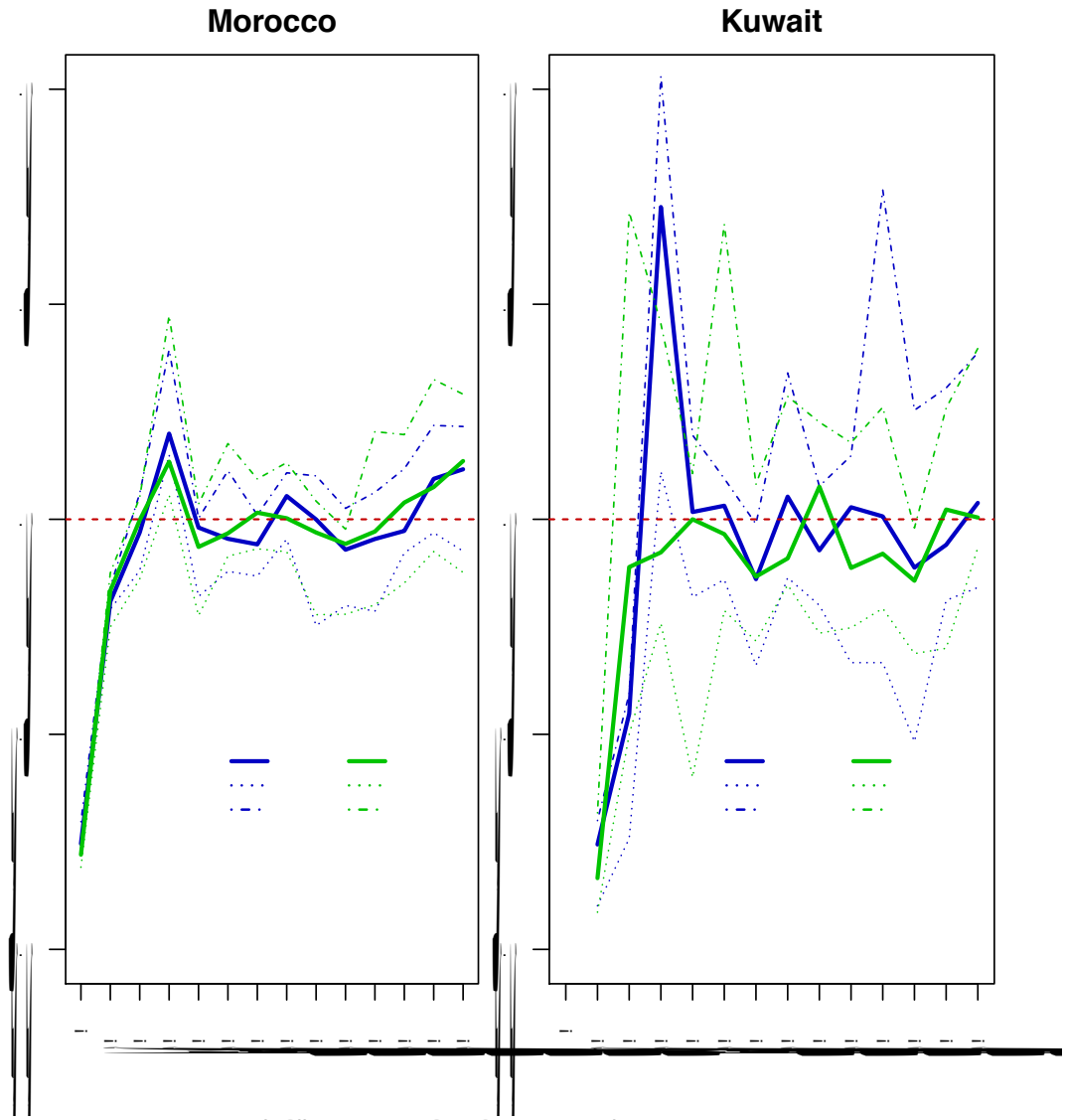


Methodological Assumptions

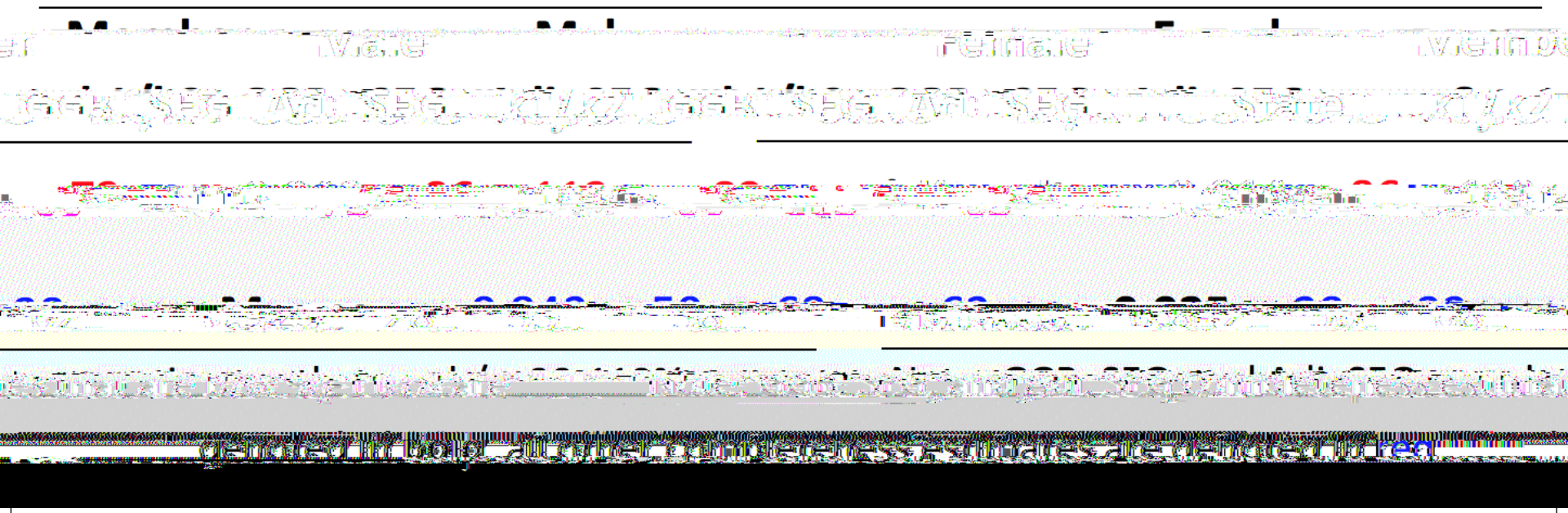
- Coverage of each individual census is the same for all ages
- Completeness of reporting of deaths is the same for all ages from a minimum ag

Death Register: Age Ratio

$$\frac{{}_5AR\,D_x = \frac{2 \times {}_5D_x}{{}_5D_{x-n} + {}_5D_{x+n}}}{}$$



Death Registration Completeness Estimates



Kuwait,

Kuwait, 2005-2011

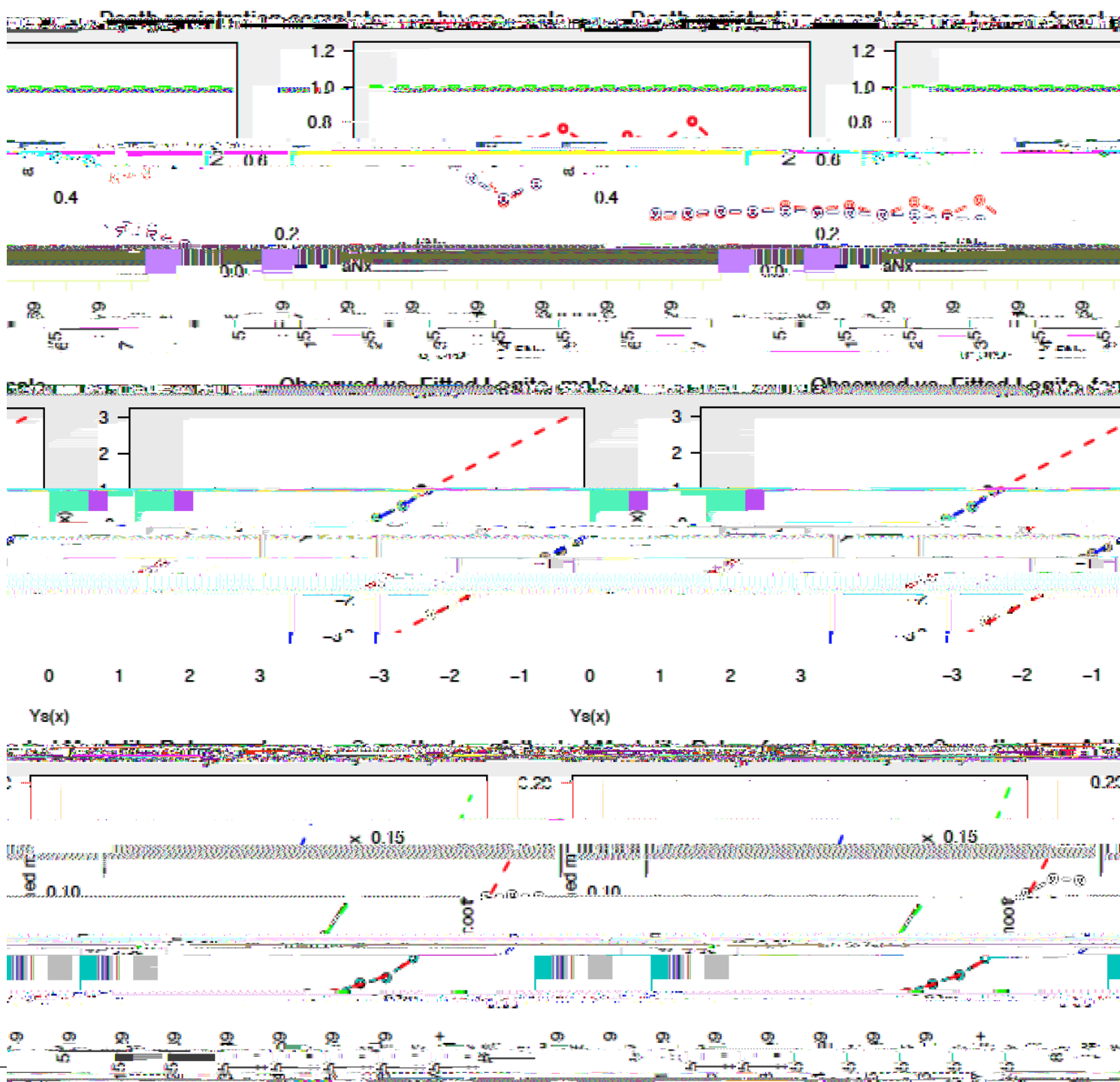
Adjusted-SEG Diagnostic Plots

Morocco, 1994-2004

GGB Diagnostic Plots

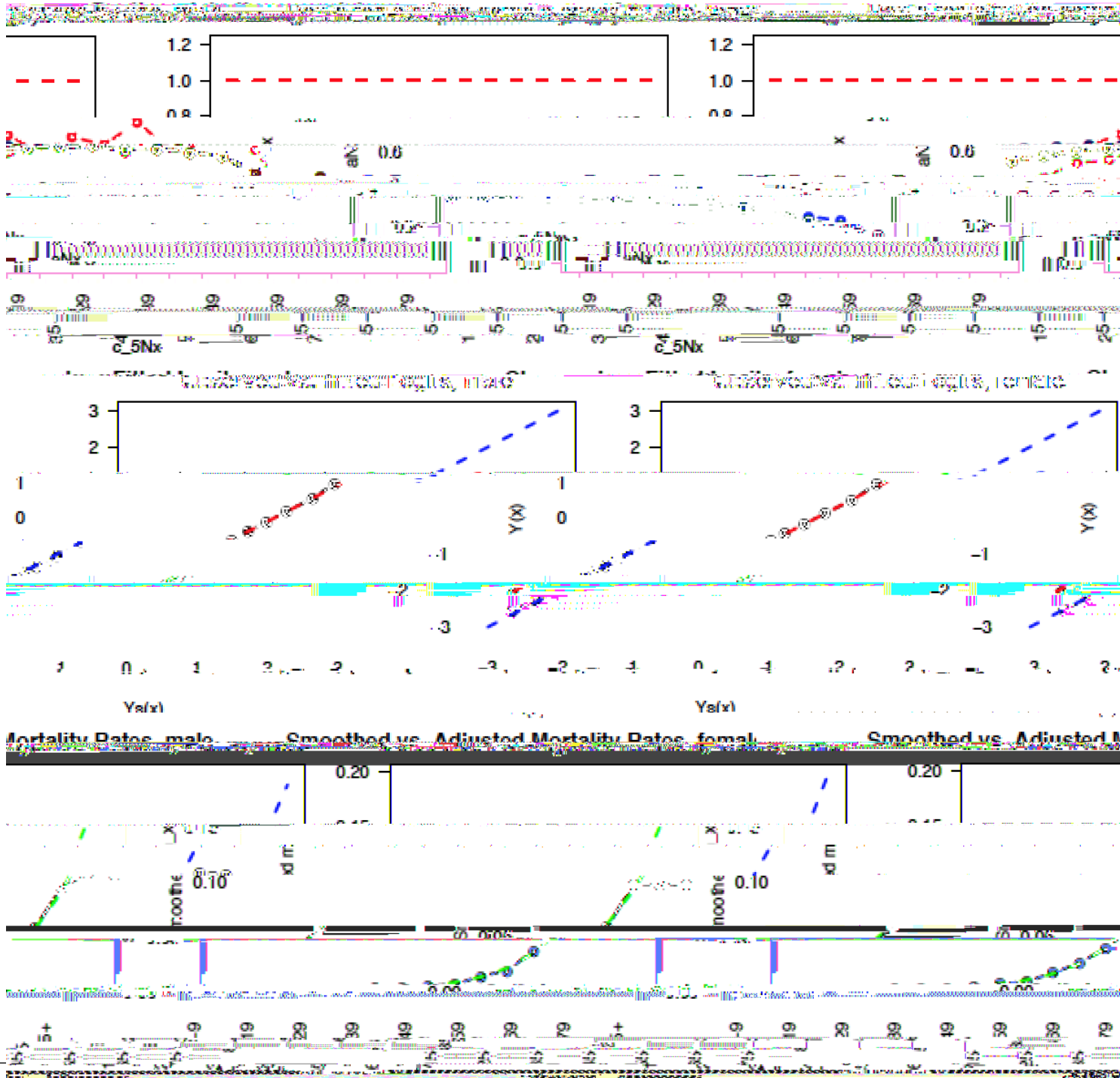
Morocco, 1994-2004

SEG Diagnostic Plots

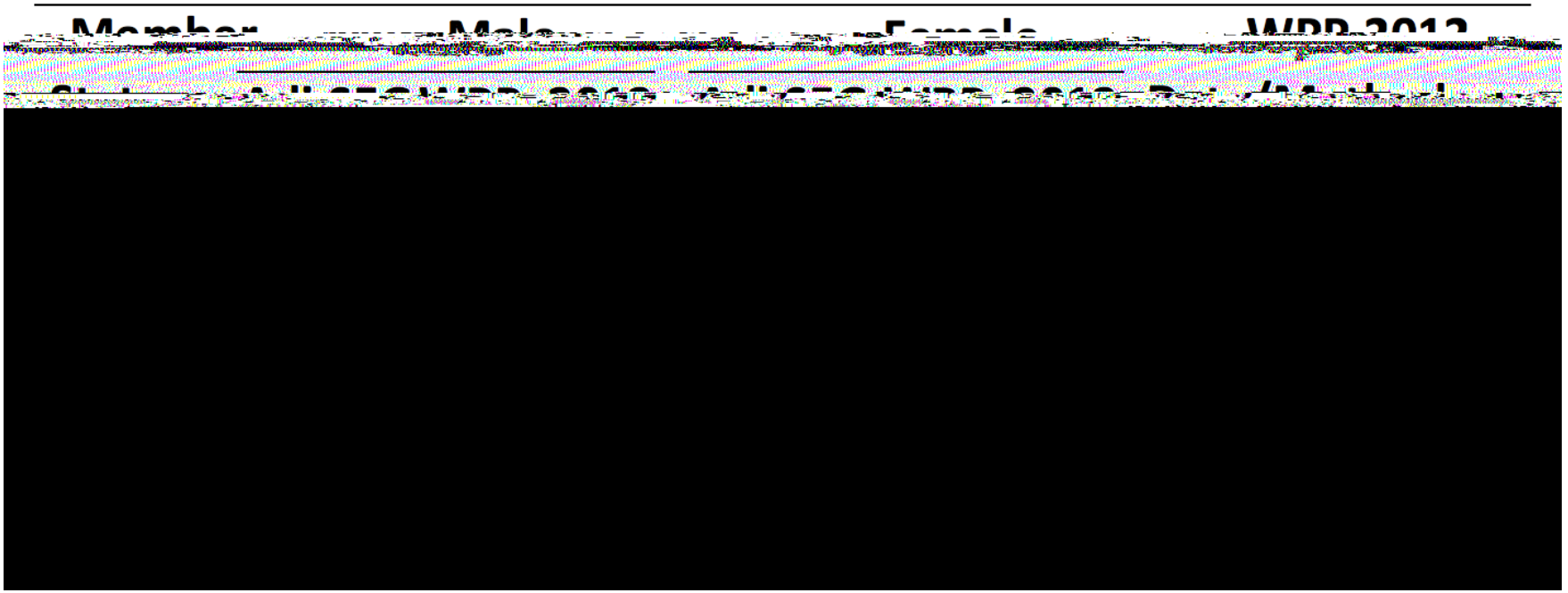


Morocco, 1994-2004

Adjusted-SEG Diagnostic Plots



Death Registration Completeness Estimates: Comparison with UNPD Official Estimates

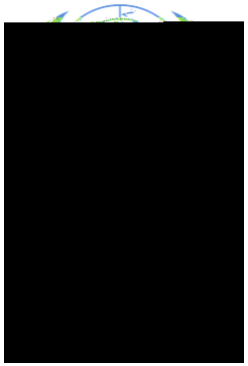


Comparison Table of Adult Mortality Estimates ($_{45}q_{15}$) by Sex derived using the Adjusted SEG Method and those published in WPP, 2012

Tentative Conclusions

- Kuwait
  - Limited insight from application of DDMs
    - Published DR data only available for nationals (~1/3 of resident population)
    - DDMs sensitive to reporting errors/bias given small pop size
- Morocco
  - Notable sex differential in DR completeness
    - Likely a rural phenomenon, but need internal migration data
- Methodological
  - Subjective-choice of age-trim
  - Effects of assumption violations

Thank you!



Romesh Silva, Ph.D.
Demographic and Social Statistics Section
Economic and Social Commission for Western Asia
United Nations

Email: silva22@un.org
Tel: +961-1-278-727
Twitter: @Romesh_Silva