Infant Mortality in Kyrgyzstan Before and After the Break-up of the Soviet Union

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Context: Health crisis in post-Soviet States

- Break-up of the Soviet Union in 1991
- Independence of Central Asian republics
- Declines in life expectancy
- Russia:
  - Increases in adult mortality
  - Infant mortality (IMR) declined in the 1990s
  - Adult behaviors vs. health care system
- Central Asia:
  - Similar declines in reported IMR (though higher levels)
  - Uncertainty about quality. Deterioration since 1991?

IMR in Russia and Kyrgyzstan
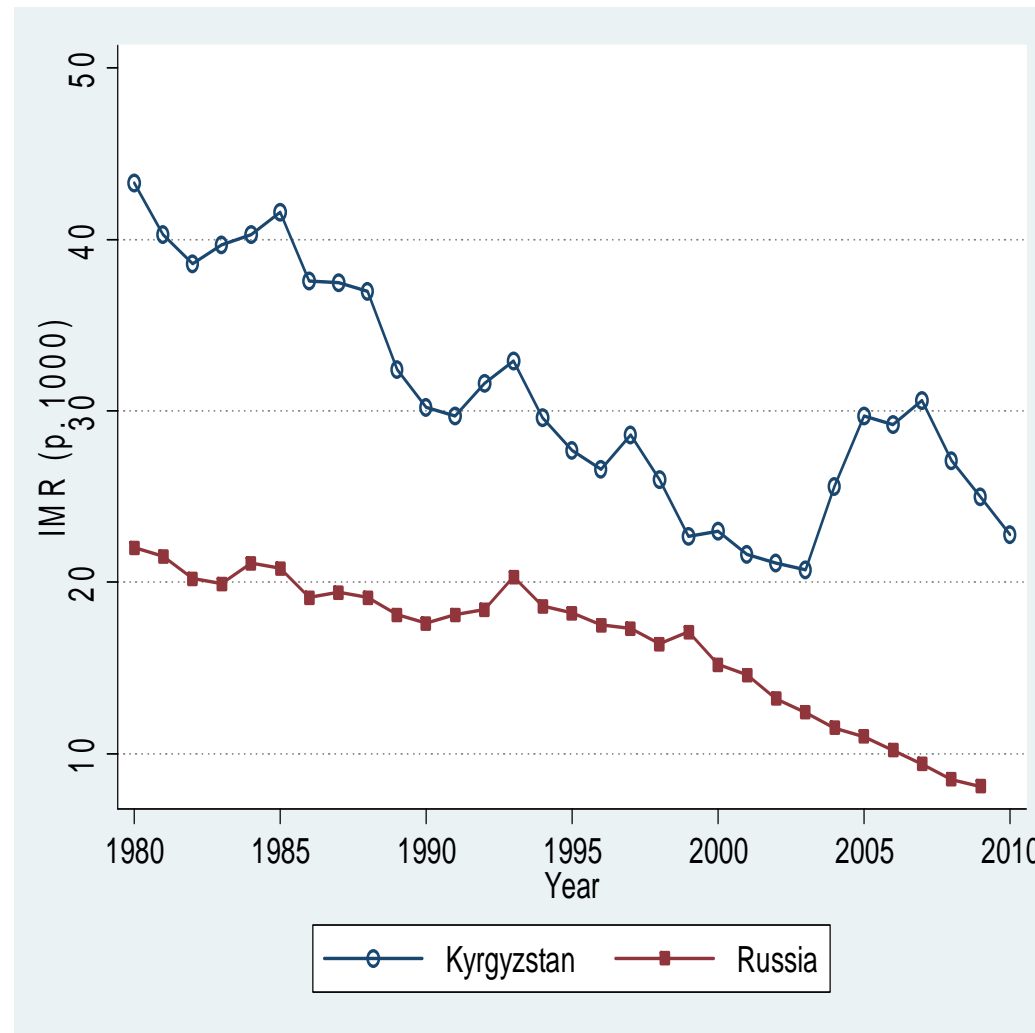
Purpose of presentation

- Assess levels and trends in infant mortality in one Central Asian republic: Kyrgyzstan
- Did IMR really continue declining after independence?
- Use of various data sources (census, surveys, vital registration), many of which are not publicly available
- Period 1980-2006: Soviet vs. post-Soviet comparison

Significance

- Monitoring levels and trends in IMR for policy purposes
- Understanding the nature of health crisis in former Soviet republics – patterns and associated factors may vary by republic
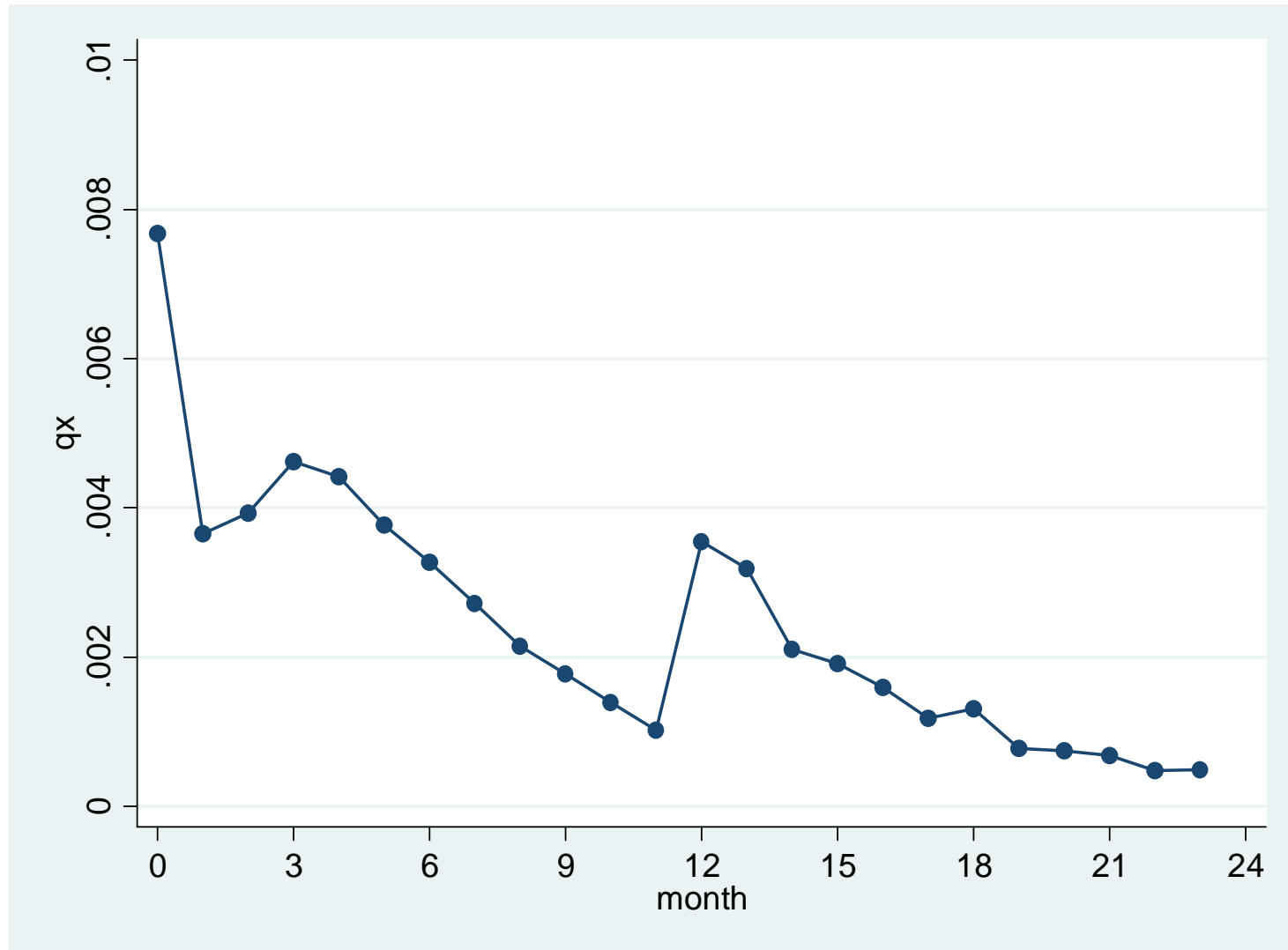
Errors in registration data

- Differences in definition of live birth (vs. stillbirth)

- Undercount of deaths below age 1

- Age misreporting of deaths (below age 1 vs. age 1 and above)

- Misattribution of urban/rural residence

Registration-based IMR in Kyrgyzstan
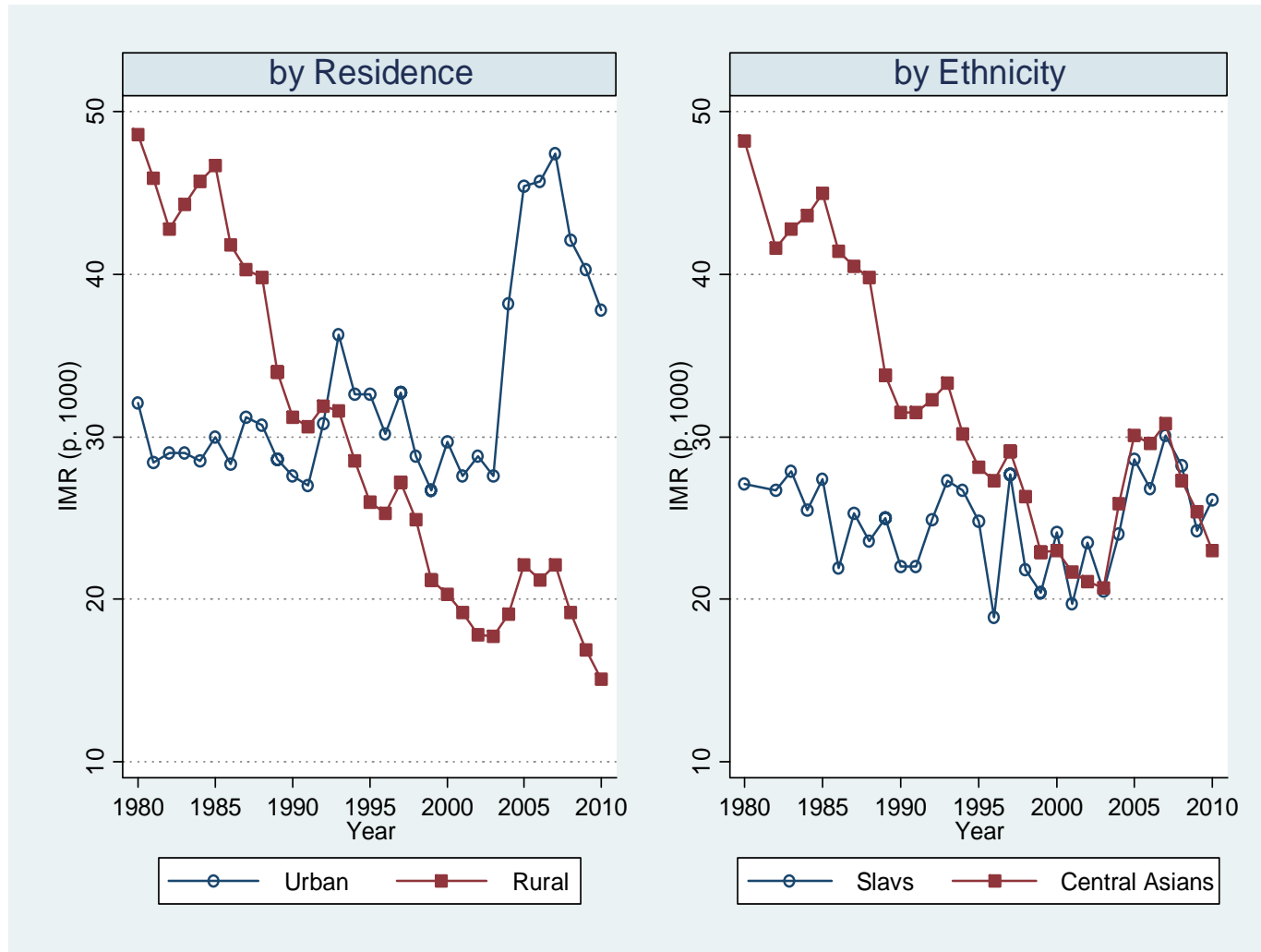
Reported monthly death probabilities, Kyrgyzstan, 1983

Data sources

(1) Sample surveys (1997 DHS, 2006 MICS)

(2) 1989 and 1999 censuses

(3) Official vital registration data

- Sample surveys widely used, but drawbacks due to small sample sizes:
  - Difficult to detect short-term changes in IMR
  - Difficult to estimate trends for subgroups (urban/rural residence and ethnicity)
- Useful to combine as many sources as possible

Correction using vital registration data

- Information on deaths by month of age and residence

- Unpublished information obtained from NSC

- Calculation of $_{21}q_3$ – the probability that a child who survived to age 3.0 months will die before age 24.0 months

Approach using 21q3

- Reported 21q3 unaffected by:
  - Definition of a live birth vs. stillbirth
  - Undercount of deaths below 3.0 months and their corresponding births
  - Age misreporting within ages 3.0-24.0 months
- Reported 21q3 still affected by:
  - Undercount of deaths between ages 3.0-24.0 months
- Strong relationship between 21q3 and IMR
  - Use of relationship to adjust IMR on the basis of reported 21q3

Relationship between 21q3 and IMR
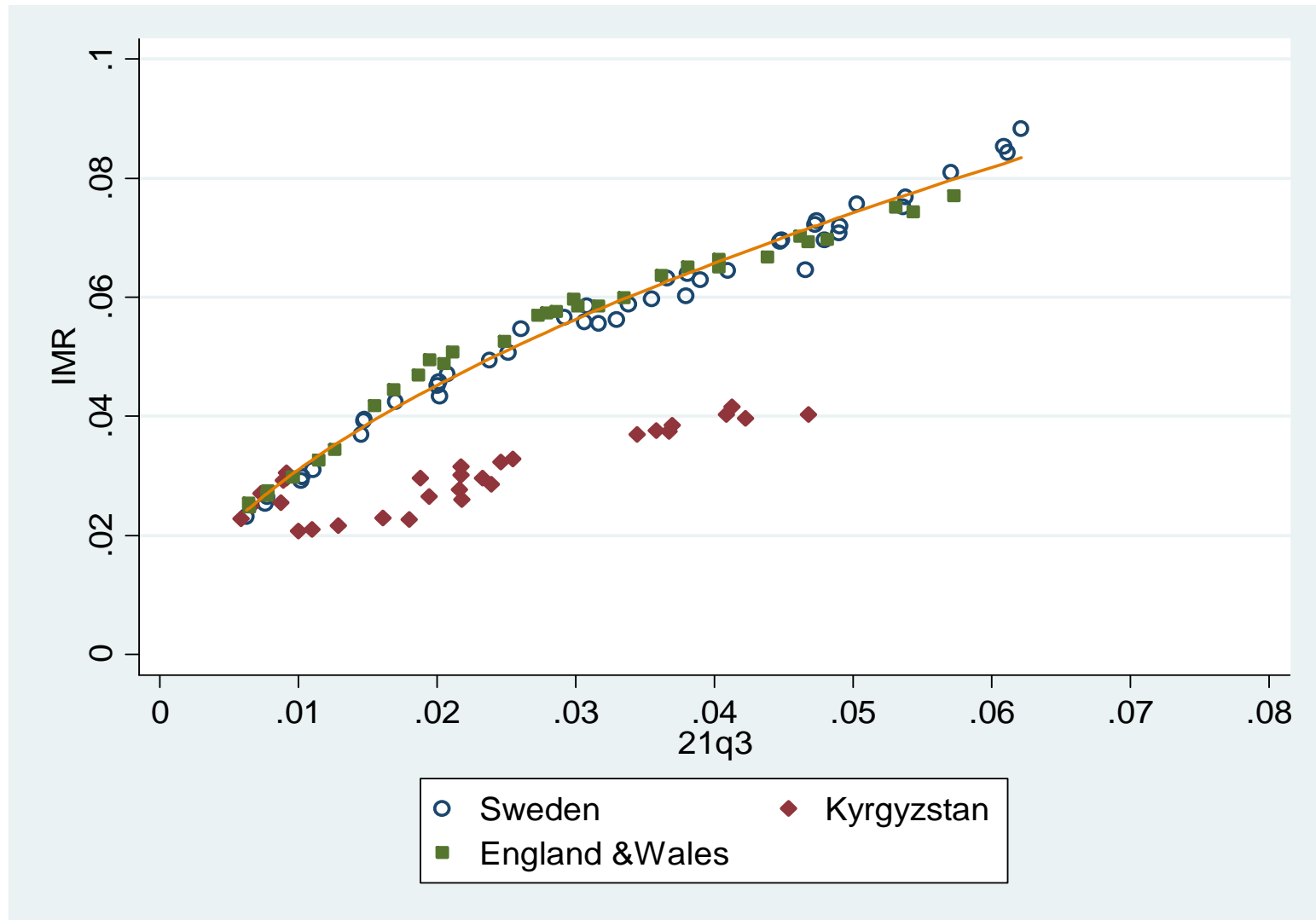
IMR, Kyrgyzstan
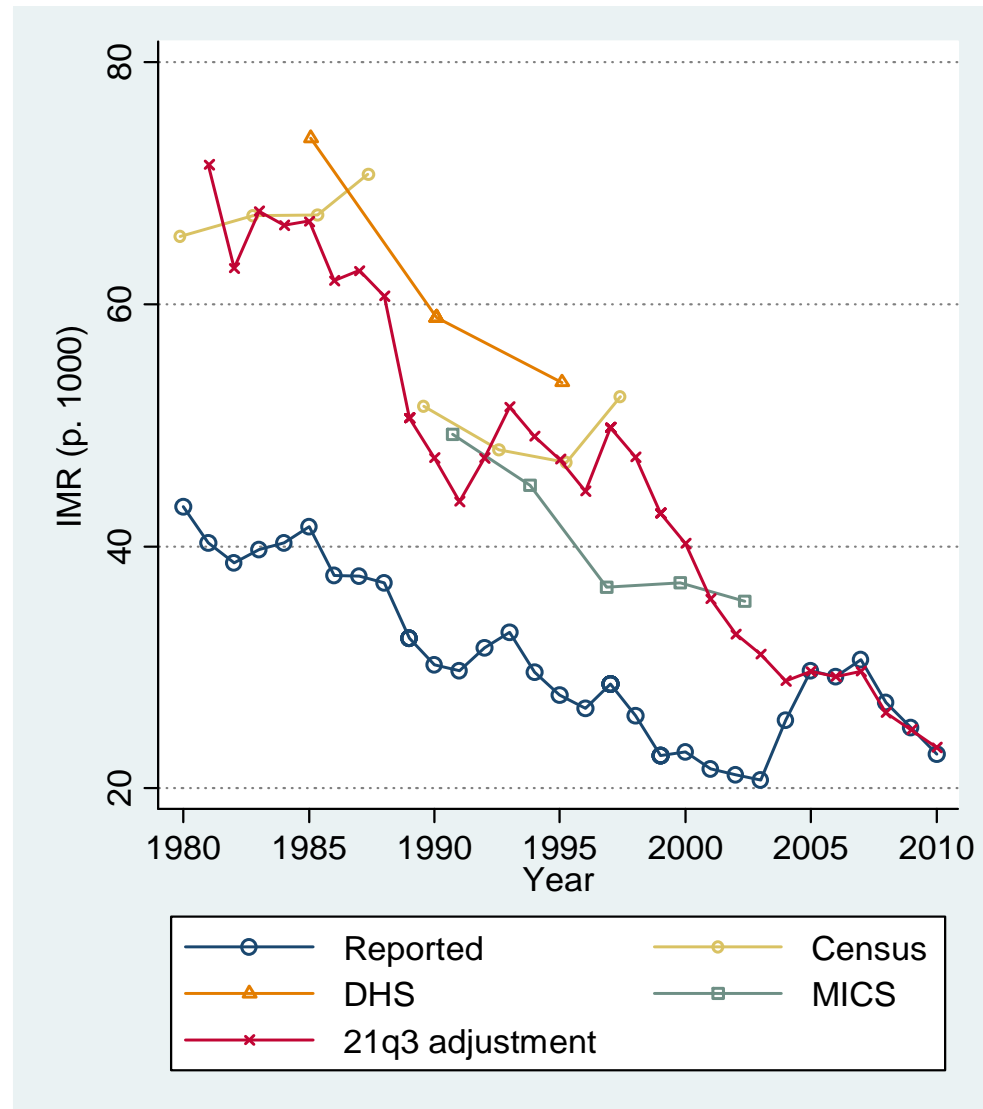
Findings

- Large underestimation of infant mortality in reported data (confirms and extends DHS results)

- Deterioration of quality in the 1990s, improvements in recent years

- IMR abruptly stalls in 1991-1999

- Reported decline spurious, due to deterioration of data quality after 1991

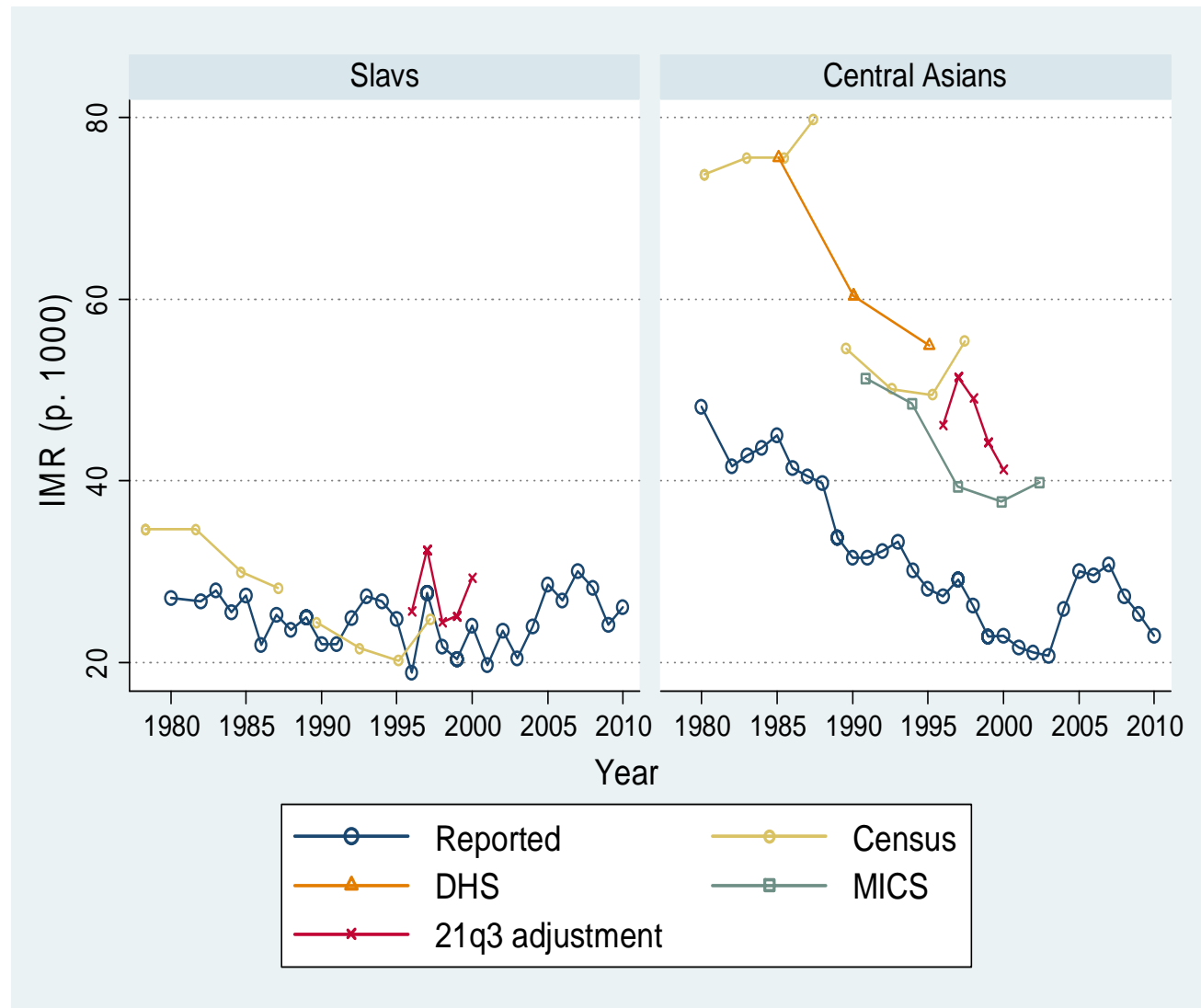- IMR resumes its decline after 1999

IMR, Kyrgyzstan, by residence
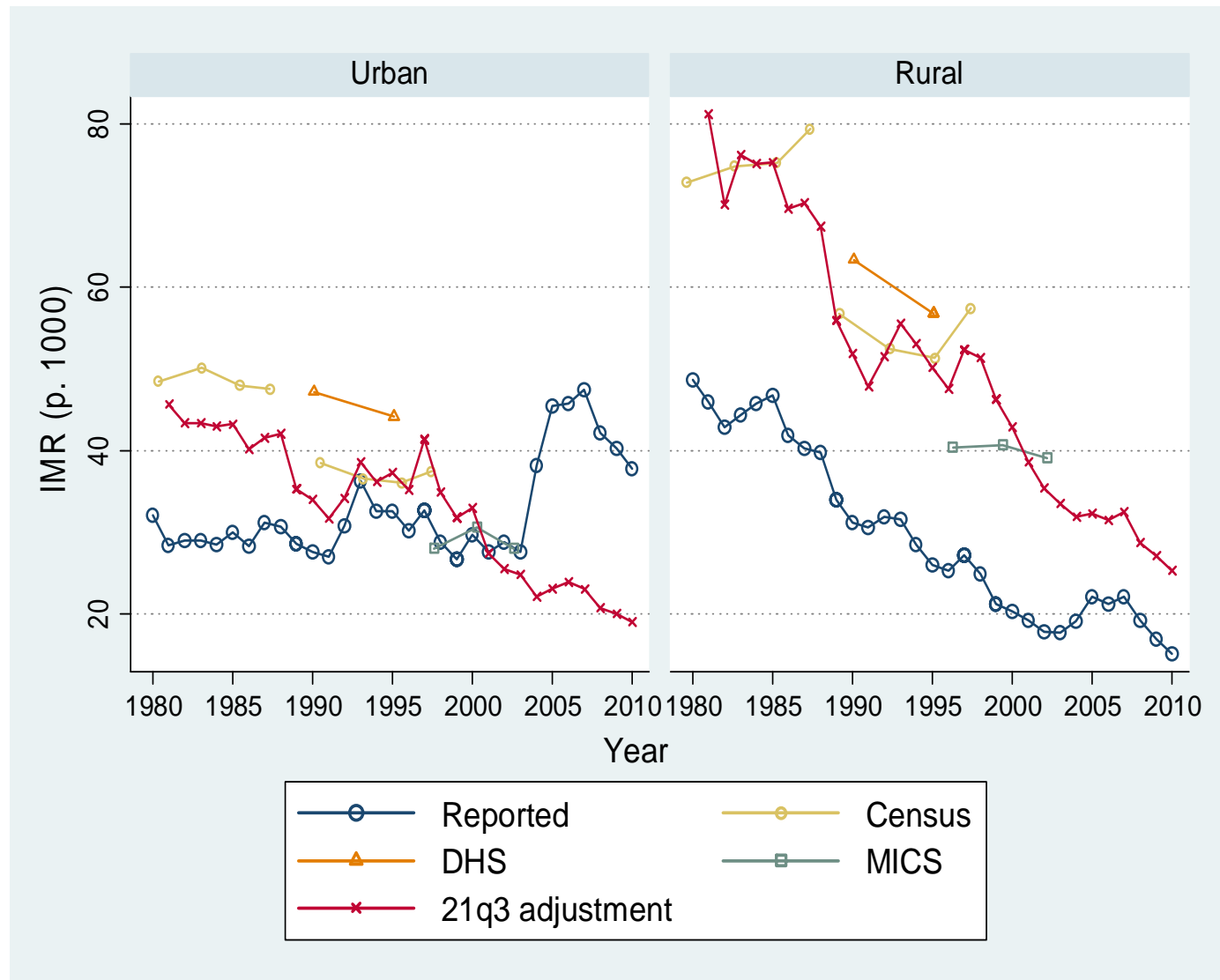
Findings

- No mortality advantage in rural areas
- Cross-over spurious, due to larger underestimation in rural areas
  - Larger undercount in rural areas
  - Up to 40% of actual rural deaths are misattributed to urban areas

IMR, Kyrgyzstan, by ethnicity

Findings

- No decrease in the gap between Slavs and Central Asians

- Central Asian ethnic groups (Kyrgyz, Uzbeks and Kazakhs) remain more at risk

- Larger underestimation among Central Asians

Impact of change of standard for classifying live births

- Adoption of WHO standard in 2004
- 42% increase in IMR in 2003 – 2006
- 21q3-based IMR estimates should not be affected if premise is true
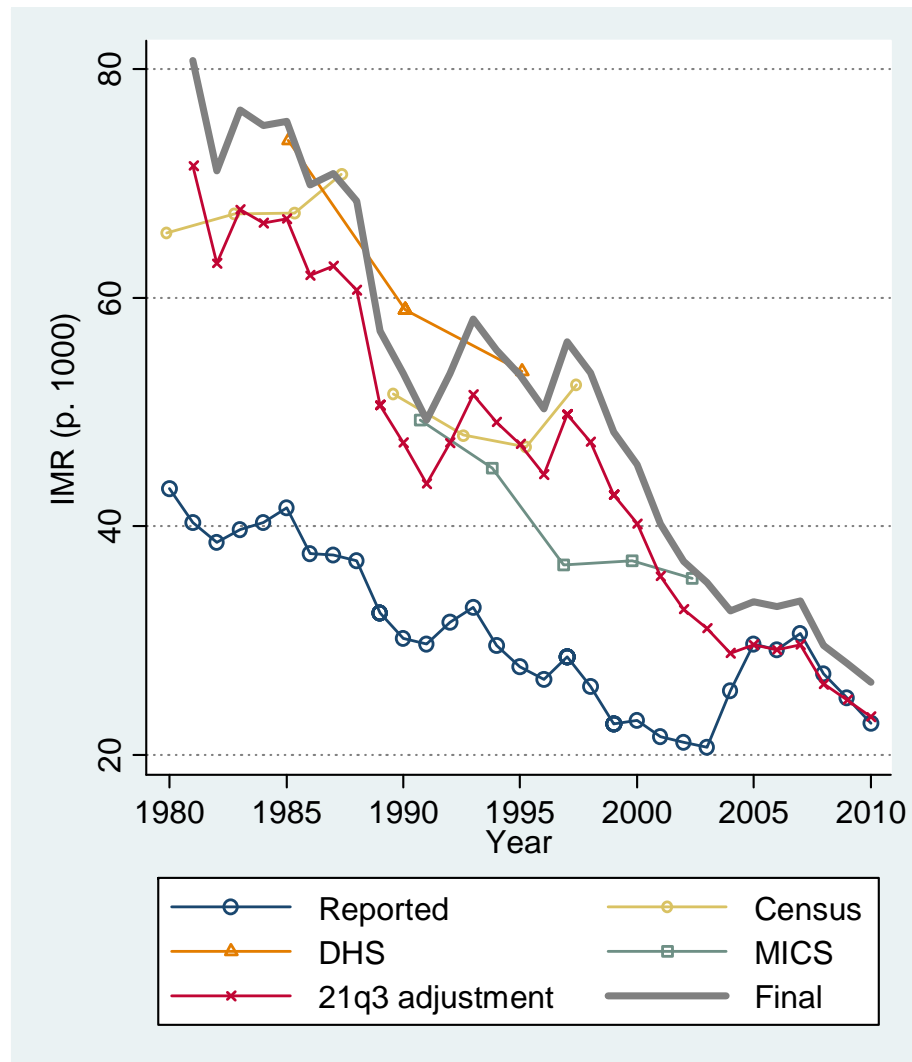
IMR, Kyrgyzstan
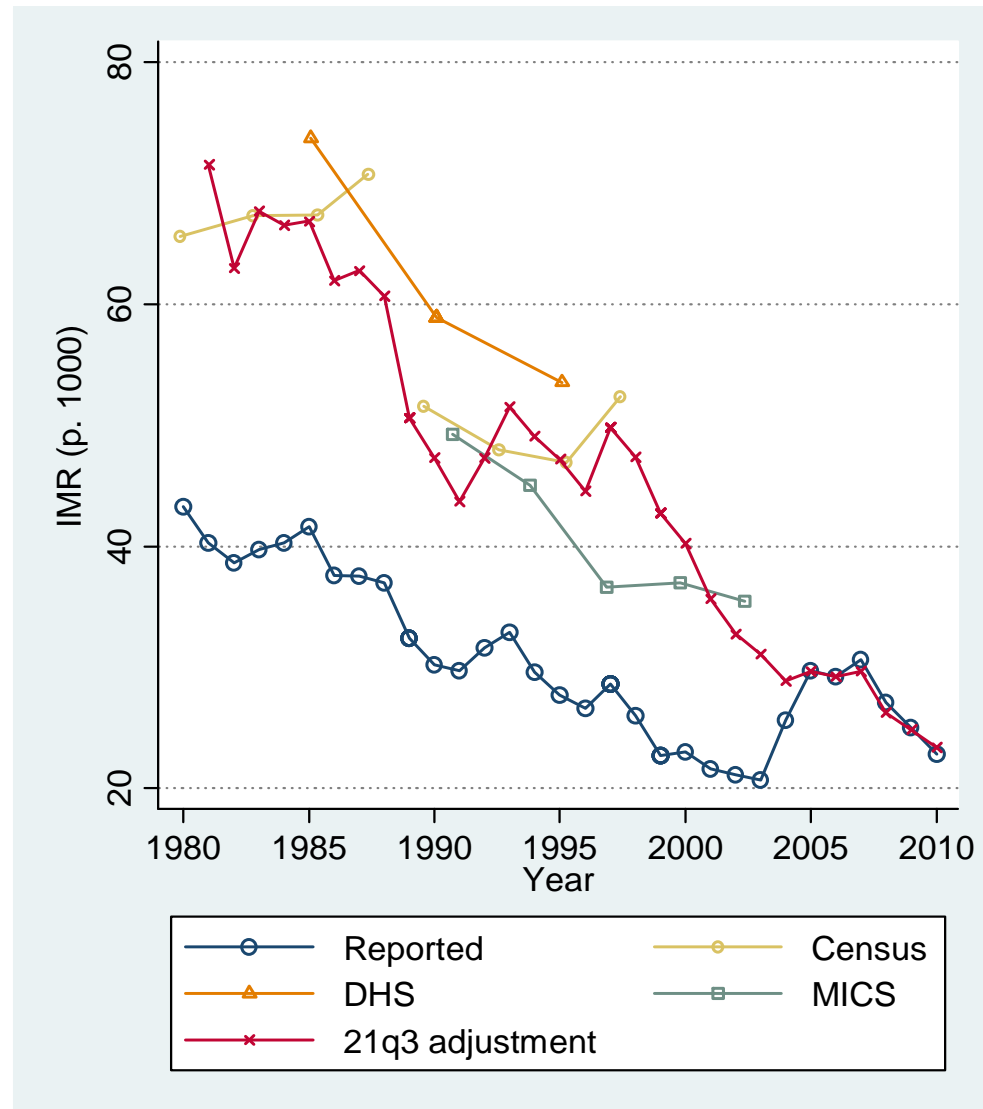
Relationship between 21q3 and IMR

IMR, Kyrgyzstan
Final adjustment

Main findings

- Contrary to what registration data indicate:
  - IMR abruptly stalled in Kyrgyzstan following the break-up of the Soviet Union
  - IMR remains higher in rural areas and among Central Asian ethnic groups

- Data quality:
  - Deterioration in the 1990s (esp. in rural areas and among Central Asian ethnic groups)
  - Improvement since 2004
  - Reported IMR in 2010 still underestimated by about 11%

Framework for Understanding Health Crisis in Russia vs. Central Asia

	Russia	**Kyrgyzstan (Central Asia?)**
Infant mortality	Declined	Stalled
Adult mortality	Large increase	Moderate increase
Explanatory framework	Greater importance of detrimental adult health behaviors	Greater importance of health care deterioration

Acknowledgements

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