Introduction

In this study, we aim to test how sibling’s death affected individual child’s mortality as we posit that household as a unit had a decisive impact on infant’s mortality in the historical German setting. Not only households may allocate comparable resources and cares among children, but children born to the same mothers may also share similar genetic characteristics thereby affecting their risks of dying.

Hypotheses

H1: There is a clustering effect of infant mortality. Due to socioeconomic and genetic reasons, some families would have higher infant mortality than others.

H2: The mortality of the index child is intra-correlated with immediate preceding sibling’s death.

H3: There are neonatal-postnatal differences in the effect of the household mortality on the child.

Data

Data used in the analysis are based on Knodel’s reconstructed historical data from 1537 to 1973 from 14 German villages, spread across the country. A sub sample has been selected retaining only the households with more than one child. Records with multiple unknown dates on birth, marriage, and death are also excluded from the analysis.

Results

Our results confirm the hypotheses that household characteristics and sibling’s mortality have significant effects on infant mortality.

Sibling’s mortality:
1. Death of the prior immediate sibling increases index child’s hazard of dying by 26%.
2. The interaction between prior immediate sibling’s death and timing of death has a significant impact on index child’s mortality. If the prior immediate sibling died during the infancy, the hazard for index child’s mortality increases 98%.
3. Having more siblings died during the infancy is associated with an increased hazard of index child’s mortality, but each sibling’s death increases the hazard of mortality by 24%.

Household effects:
1. Mother’s death during index child’s infancy increases index child’s mortality hazard by 45%, implying that mother’s genetic characteristics and health may affect infant’s chances of survival.
2. Remarriage of the father has a positive relationship with index child’s mortality (29%).

Conclusion

1. Examination on infant mortality must take household intra-correlated mortality into account, as argued by Lynch and Greenhouse (1994).
2. The analysis on the period effect shows that, all else being equal, from 1500 index child’s hazard of dying increases up to 1918 and decreases to only 72% from that date (compared to the prior to 1700 birth cohorts).
3. Although this project attempted to address the mortality clustering, our project can not provide sufficient evidence so far but has pointed a research line to pursue. Future research will utilize the shared frailty model to grasp the essence of this phenomenon.

References
