

Statistical Inference from Demographic Data

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FIG. 12.1 Age-specific fertility rate among Tsimane women.

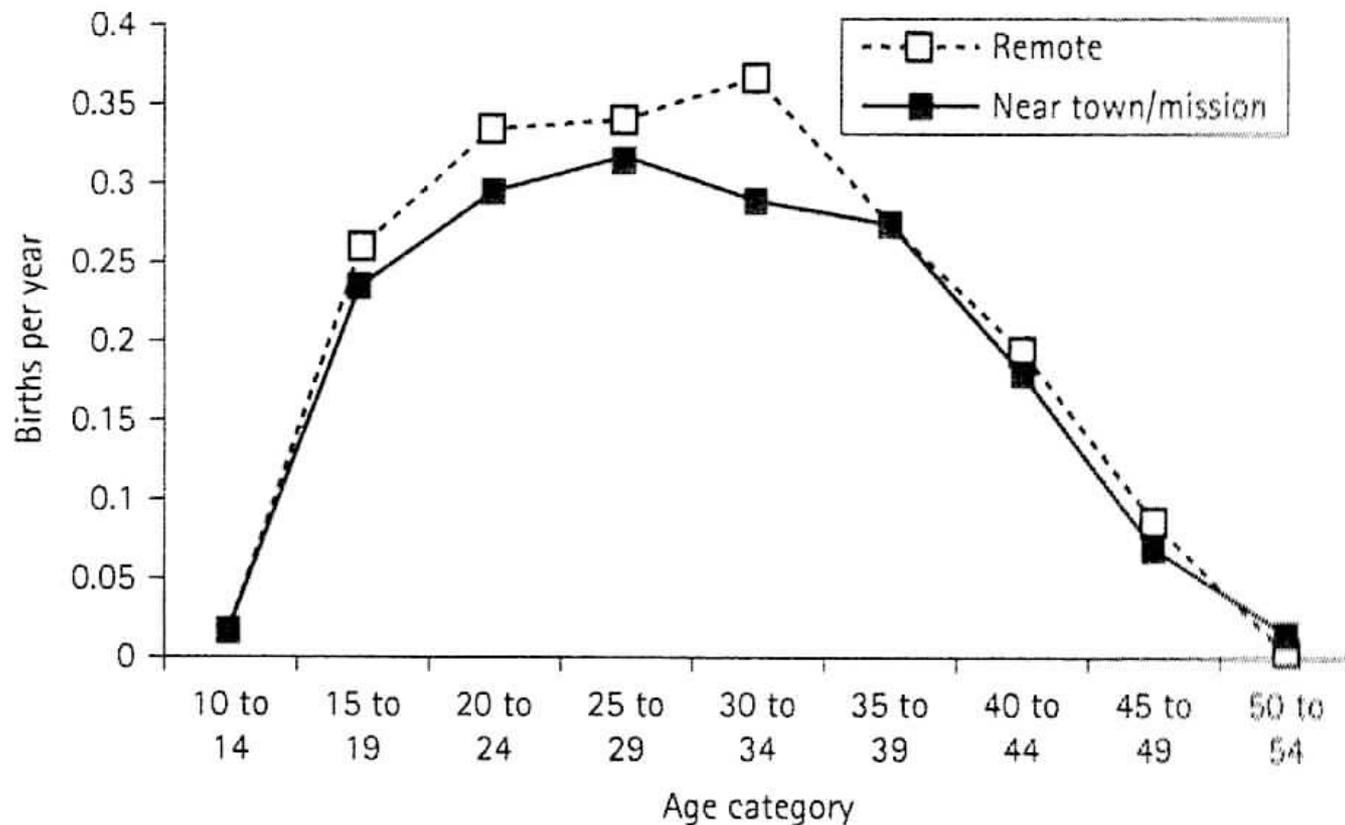
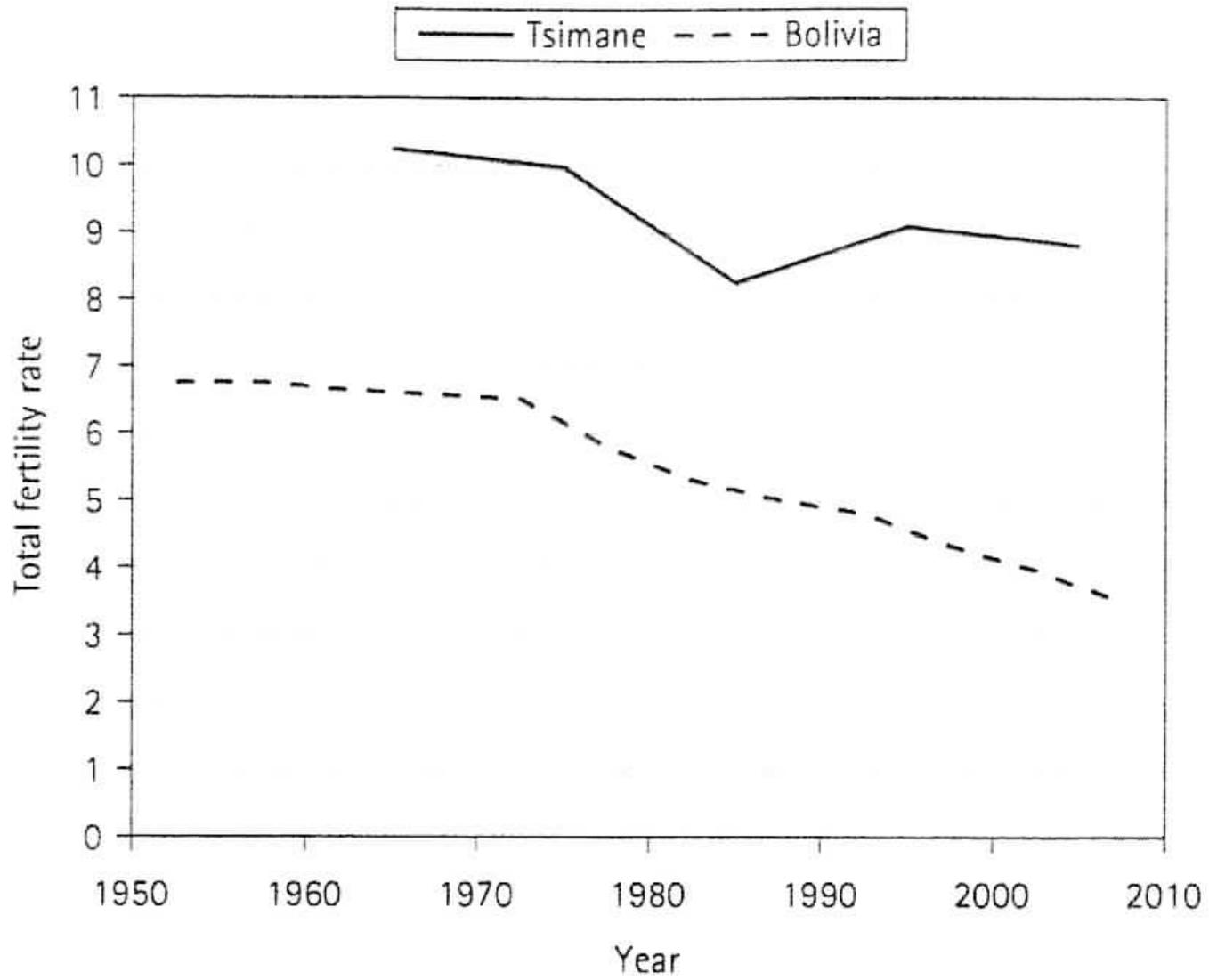


FIG. 12.2 Regional variation in age-specific fertility rate.



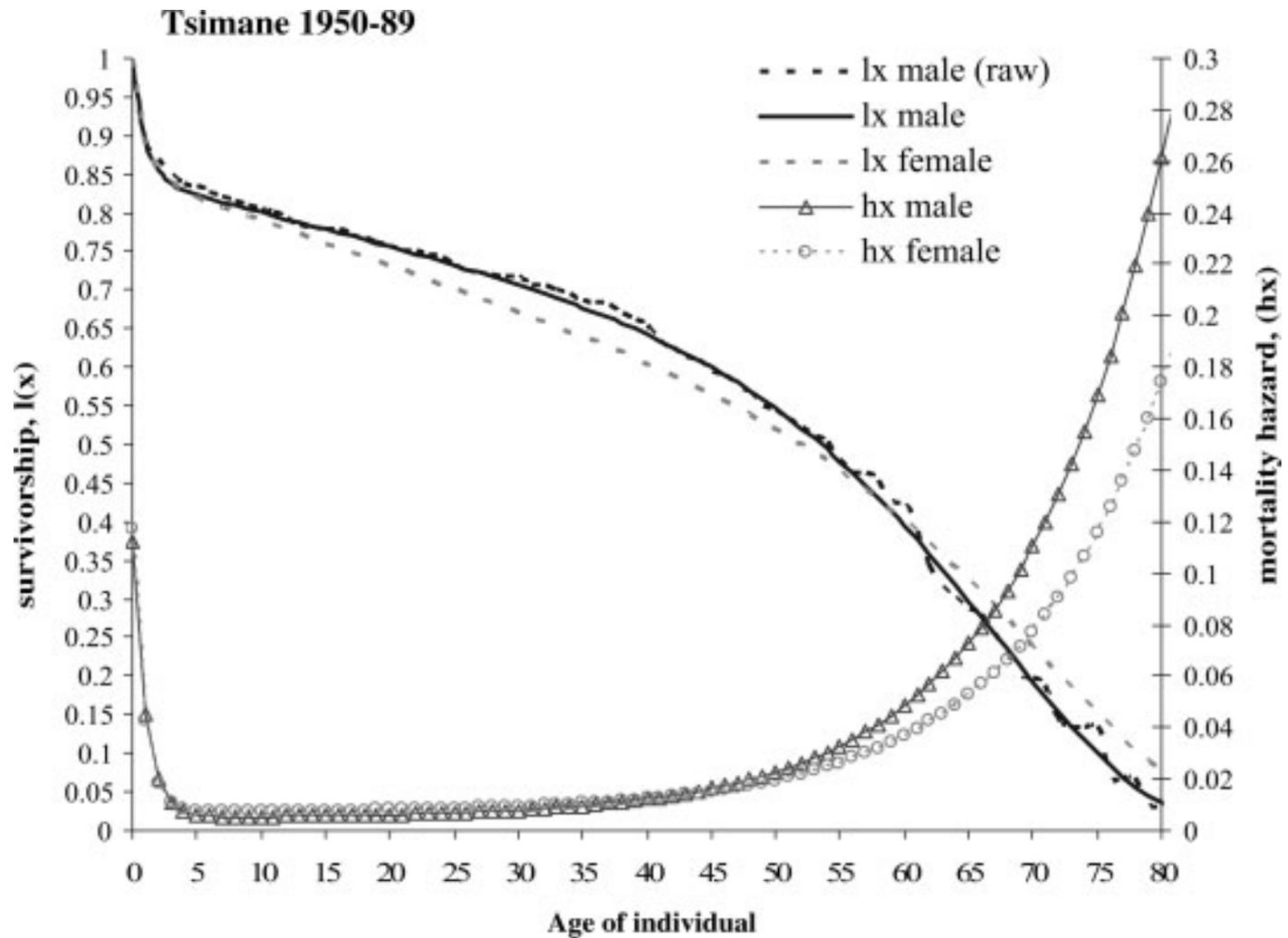


Fig. 5. Siler-estimated survival curves (l_x) and age-specific mortality rates (h_x) for males and females across the lifecourse, 1950–1989. Dashed bold line shows raw male l_x curve.

Infant and child mortality by sex, 1950-89

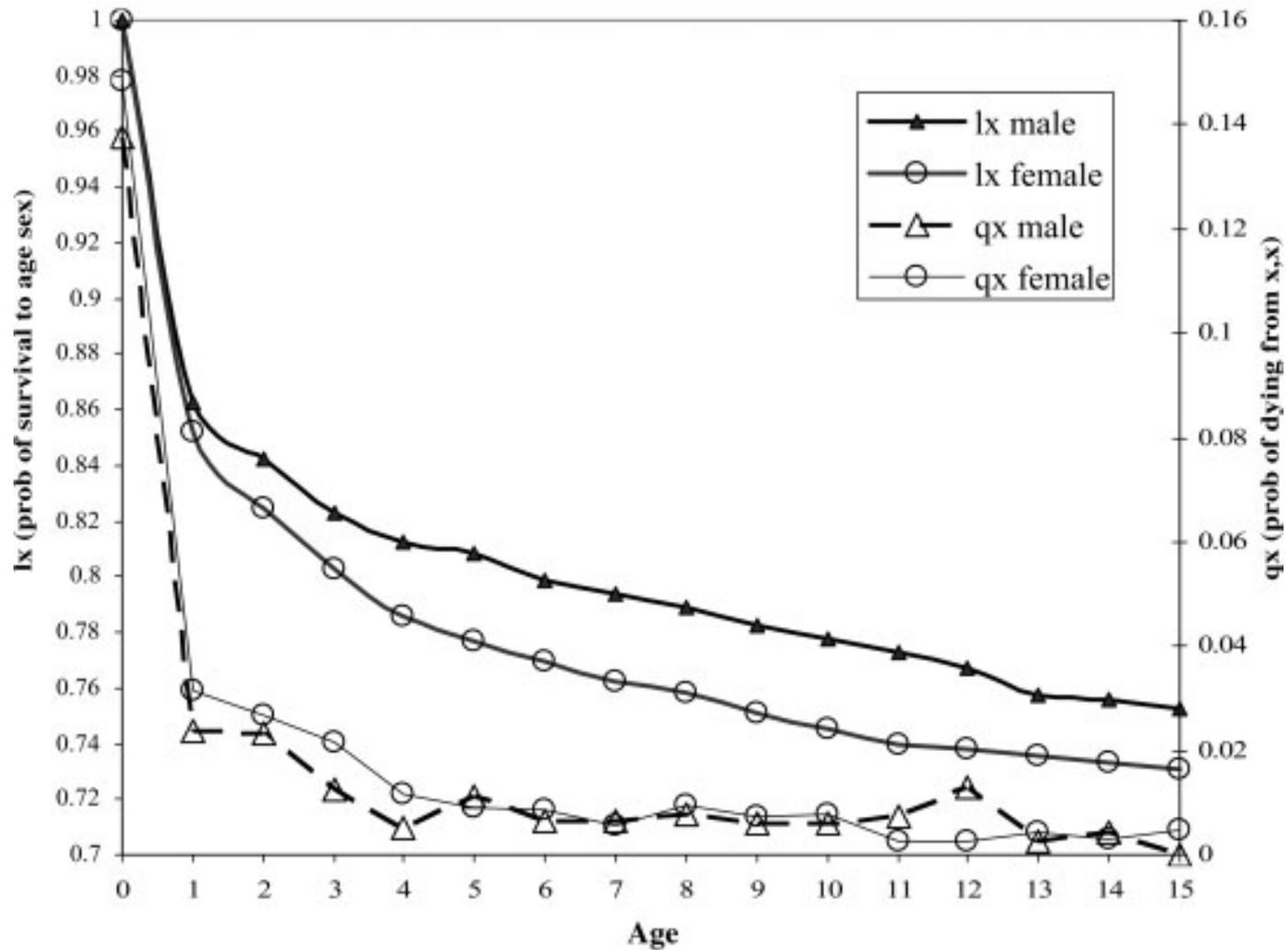
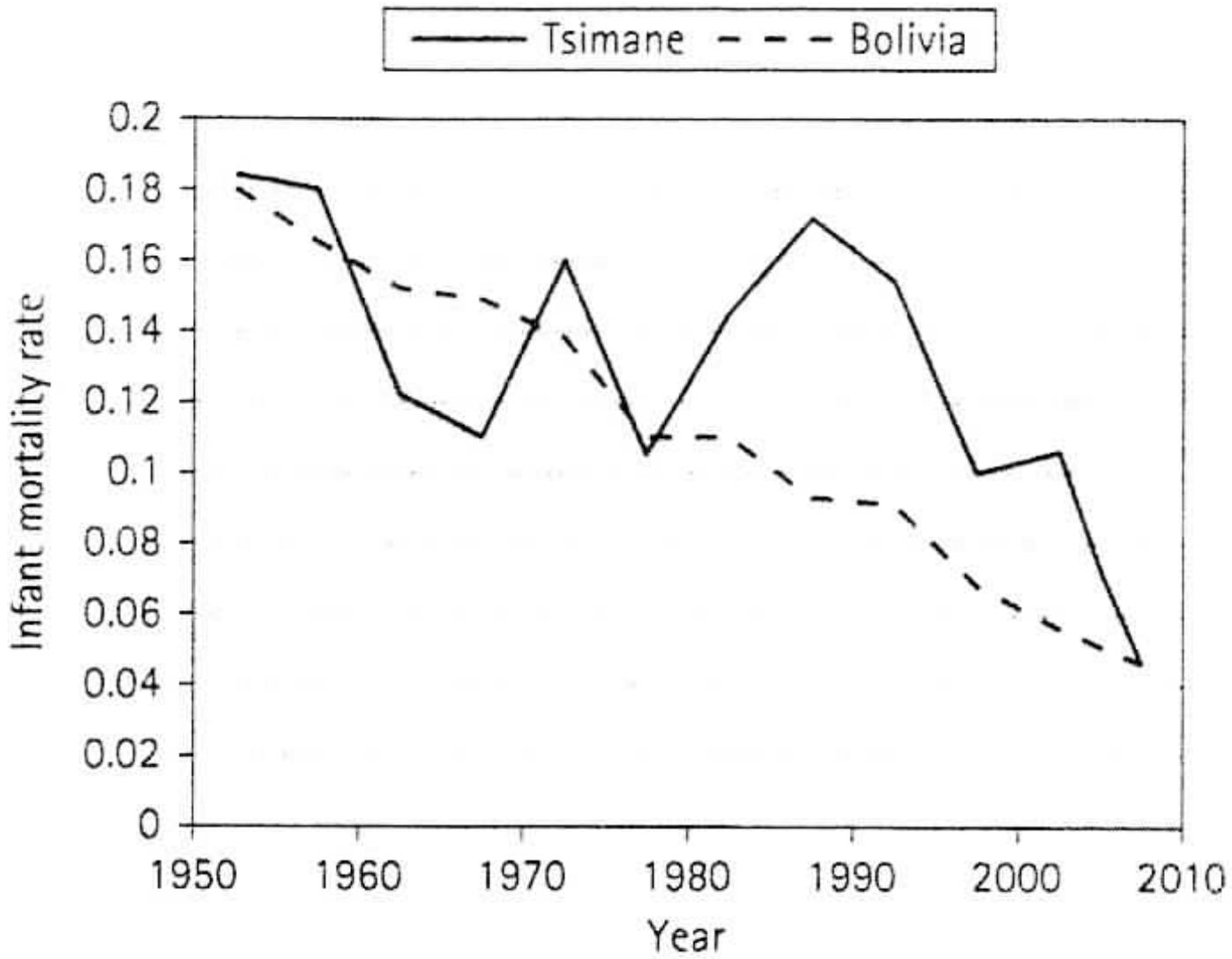


Fig. 4. Probability of survival to age \times (l_x) and age-specific mortality rates (h_x) for males and females under age 15, 1950–1989.



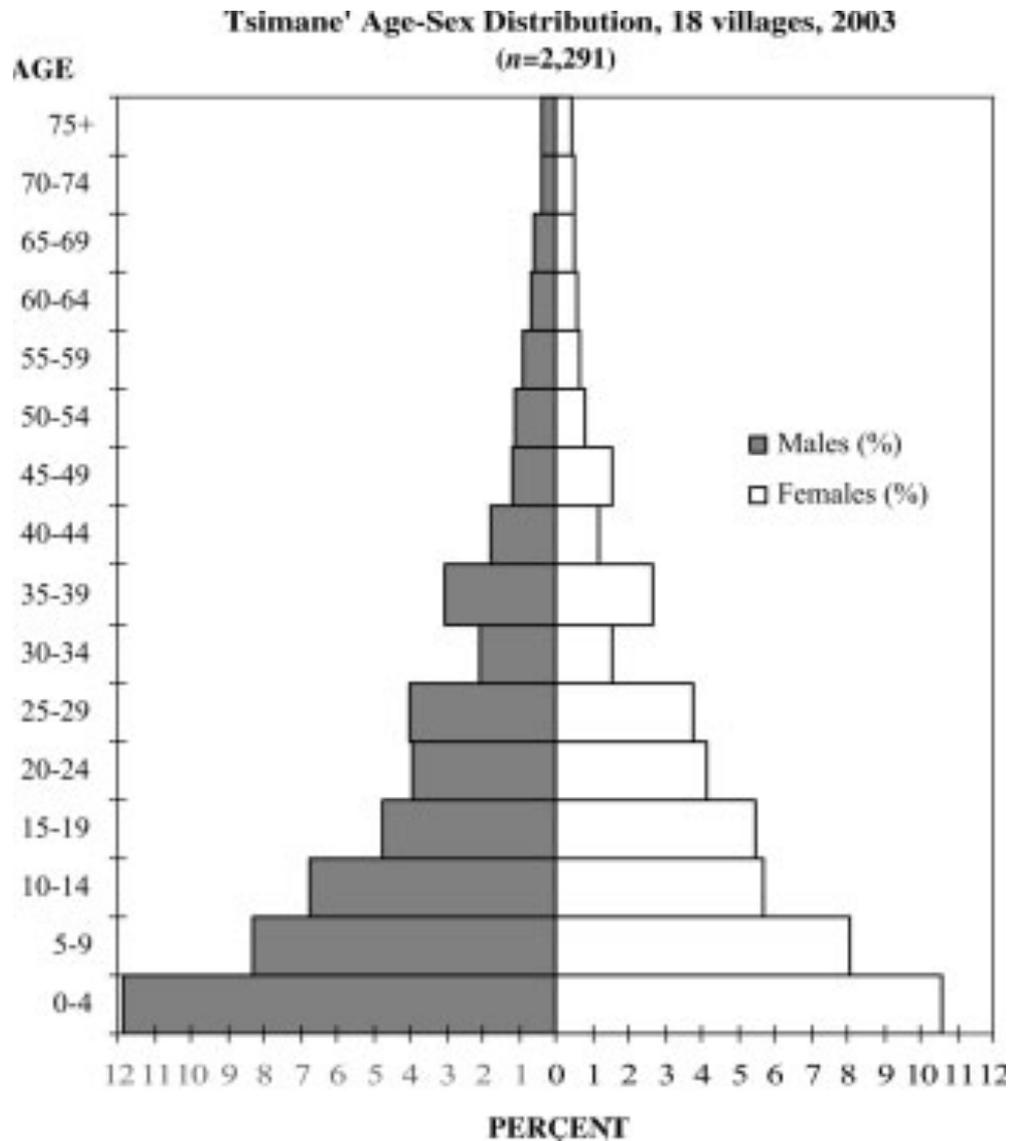


Fig. 2. Tsimane age-sex pyramid based on censuses in 18 study village censuses during 2002–2003 ($n = 2,291$ individuals).

Which kind of model will work depends on your response variable

Duration response variable	Yes/no response variable	Continuous response variable
<ul style="list-style-type: none">• Survival analysis• Requires knowing about censoring• For plots and comparing 2 groups: Kaplan-Meier model• For multiple predictors: Cox Proportional Hazards• Can include random effects for multi-level data (e.g. multiple observations per individual, or per community etc.)	<ul style="list-style-type: none">• Logistic regression• Can include random effects for multi-level data	<ul style="list-style-type: none">• Generalized linear models• Possible link functions<ul style="list-style-type: none">• Normal• Poisson (for well-behaved count data)• Gamma (for badly behaved count data)• ...• Can include random effects for multi-level data

Survival Analysis Exercise

1. Navigate to:

<https://centre.santafe.edu/complextime>

- Meetings
- Population and the Environment
- Agenda tab
- Paul Hooper (SFI)- Modeling complex populations

2. Download:

Related files - [First Birth Data For Course.csv](#)

3. Go to this website:

Reference material –

*** Access the Emory CASAS Cancer Survival Analysis Suite here: ***

<http://bbisr.shinyapps.winship.emory.edu/CASAS/>