Precept 5: ASFR and TFR from Survey Data

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1 Equations

1.1 What we want

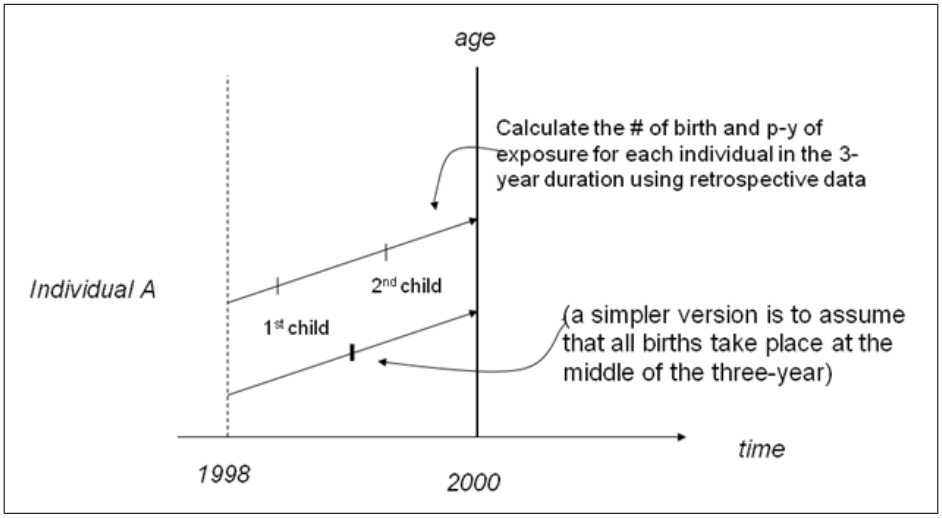
$$TFR\left[0,T\right] = n \cdot \sum_{x=\alpha}^{\beta-n} {}_nF_x\left[0,T\right]$$

1.2 What we need

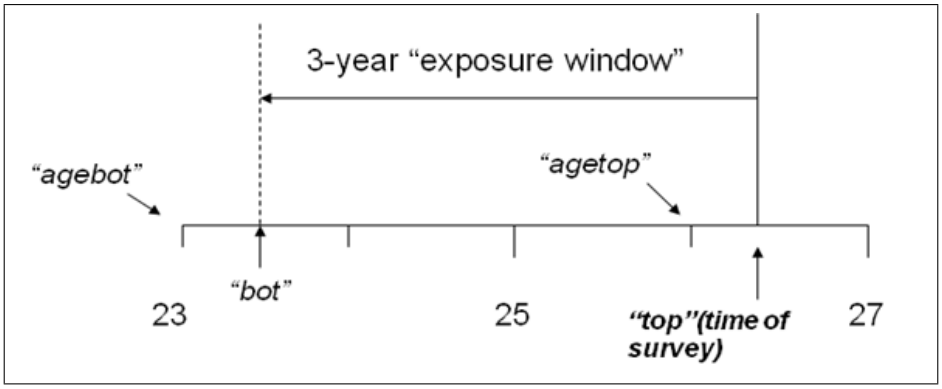
$${}_nF_x\left[0,T\right] = \frac{Births\ in\ the\ period\ 0\ to\ T\ to\ women\ aged\ x\ to\ x+n}{Person-Years\ lived\ in\ the\ period\ 0\ to\ T\ by\ women\ aged\ x\ to\ x+n}$$

1.3 Two methods of estimation

Note: Illustrations by Tin-chi Lin



1.4 Remember the observation window



2 Stata

Note: the following descriptions come from the Stata 11 help

2.1 pweights

pweights, or sampling weights, are weights that denote the inverse of the probability that the observation is included because of the sampling design.

Example:

```
regress y x1 x2 x3 [pw=1/prob]
```

2.2 aweights

aweights, or analytic weights, are weights that are inversely proportional to the variance of an observation; i.e., the variance of the jth observation is assumed to be $sigma^2/w_j$, where w_j are the weights. Typically, the observations represent averages and the weights are the number of elements that gave rise to the average. For most Stata commands, the recorded scale of aweights is irrelevant; Stata internally rescales them to sum to N, the number of observations in your data, when it uses them.

Example:

```
regress avgy avgx1 avgx2 [aw=cellpop]
```

2.3 floor

floor(x), returns the unique integer n such that $n < x < n + 1$.

2.4 expand

expand, replaces each observation in the dataset with n copies of the observation, where n is equal to the required expression rounded to the nearest integer. If the expression is less than 1 or equal to missing, it is interpreted as if it were 1, and the observation is retained but not duplicated.

Example:

```
expand [=]exp [if] [in] [, generate(newvar)]
```

2.5 collapse

collapse, converts the dataset in memory into a dataset of means, sums, medians, etc.

Example:

```
collapse clist [if] [in] [weight] [, options]
```