

# Attrition

- **Attrition** = Reduction of sample due participants dropping out prior to follow-ups.
- Attrition can be a problem if those who drop out differ significantly on the outcome variable from those who do not drop out.
- Again, the more of the sample that is retained, the stronger the conclusions. Generally retention rates of 70% or higher are thought to be acceptable
- One way to test for the effect of attrition on your study is to compare those who do and do not drop out on all baseline measures to see if they differ. (This does not tell you directly about the outcome measure, but does tell you if study drop-outs vary systematically from others on some variable that might relate to outcome.)

# What If No Control Group Is Available

- With a pre-test/post-test design in a single community, it is impossible to determine whether the differences across time are due to the casino opening, random fluctuations, or some other change that occurred.
- Bryan ideally ought to have a quasi-experimental design that includes comparable control communities where no casino opened. Then the changes in the community with the casino can be compared to the changes in the communities without the casino.
- Often, this is not possible due to funding and logistics.
- In this case, the design can be strengthened by including multiple time points before and after the event of interest (e.g., the casino opening).

# Interrupted Time-Series Design

- When no control group is available, the design can be strengthened by measuring the outcome of interest at multiple time points before and after the event (e.g., the casino opening). This is called an **interrupted time-series design**.
- The notation for an interrupted time-series design looks like this:
  - O1 O2 O3 O4 X O5 O6 O7 O8.
- In this notation, O=observation and X=event (e.g., casino opening). In the above notation, there are four observations that take place before the event and four observations that take place after the event.
- As the next slide shows, this design allows you to detect whether changes that occur after the event differ from changes that occur between any other two time points.

# Simple Interrupted Time-Series Design

