Interpretations & Assumptions for Two Population Proportion Intervals

Julie Deeke

Statistics Course Developer

Swimming Lessons Confidence Interval

“range of reasonable values for our parameter”

With 95% confidence, the population proportion of parents with white children who have taken swimming lessons is 11.23 to 24.77% higher than the population proportion of parents with black children who have taken swimming lessons.

Intervals for Differences

Is there a difference between two parameters?

If parameters are equal → difference is **0**

If parameters are unequal → difference is not **0**

Look for **0** in the range of reasonable values

Assumptions

We need to assume that we have **two independent random samples.**

We also need **large enough sample sizes** to assume that the distribution of our estimate is normal. That is, we need $n_1\hat{p}_1$, $n_1(1-\hat{p}_1)$, $n_2\hat{p}_2$, and $n_2(1-\hat{p}_2)$ to all be at least 10.

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In other words, we need at least 10 yes's and at least 10 no's for each sample.