

$$\frac{np}{npq} \quad \left(\frac{X - np}{\sqrt{npq}} \right)$$

\downarrow
 z

$$\sqrt{n}(X - E(X)) \rightarrow N(0, npq)$$

$$\frac{\bar{X} - E(X)}{\sqrt{\frac{pq}{n}}}$$

$$\frac{\bar{X} - E(X)}{\sqrt{\frac{pq}{n}}} \rightarrow z(0, 1)$$

$$\frac{X - np}{\sqrt{\frac{npq}{n}}}$$