Econometrics comp

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1 Arthur

1. Standard consistency conditions:

   1. Identification: $lim_{n \to \inf} Q_n(\theta) = Q_0(\theta)$. $Q_0(\theta)$ exists and is only maximized at $\theta = \theta 0$.

   2. Smoothness: $Q_n(\theta)$ is differentiable in θ.

   3. Compactness: Θ is a compact set.

   4. Stochastic-equicontinuity: a sufficient condition for this is

   $$sup_{\theta \in \Theta} | \frac{\partial Q_n(\theta)}{\partial \theta} |$$

   is bounded in probability.

2. Invariance property of the maximum likelihood estimator:

   It requires $g(\theta)$ to be bounded, continuous and does not depend on sample size n.

3. Delta method

It requires $\frac{dg(a)}{da'}$ to be finite and non-zero, plus not depending on n and continuously differentiable in a neighborhood of a.

2 Shakeeb

3 Xiao