

As exemplified in the joint office hours today, the following are some typos' corrections regarding the second part of the notes [here](#):

- In page 9, the term  $\frac{X'_n \varepsilon_n}{n}(\theta - \theta_0)$  in the expression  $(\theta - \theta_0)' \frac{X'_n X_n}{n} (\theta - \theta_0) - 2 \frac{X'_n \varepsilon_n}{n} (\theta - \theta_0) + 1$  due to the obvious reasons of conformality should be replaced by the correct  $(\theta - \theta_0)' \frac{X'_n \varepsilon_n}{n}$  (or equivalently by  $\frac{\varepsilon'_n X_n}{n}(\theta - \theta_0)$ -why?). Notice that in page 23 the criterion is correctly expressed. Analogously, wherever the term  $\frac{X'_n \varepsilon_n}{n}(\theta - \theta_0)$  and the term  $\frac{X'_n \varepsilon_n}{n}(\theta - \theta^*)$  appear in page 10, they should be respectively replaced by  $(\theta - \theta_0)' \frac{X'_n \varepsilon_n}{n}$ , and  $(\theta - \theta^*)' \frac{X'_n \varepsilon_n}{n}$ .
- Due to reasons of notational conformality (essentially the result remains unchanged- see below) a more correct notation for the expression  $\frac{\partial c_n(\theta, V)}{\partial \theta}$  in page 16, is  $\frac{\partial x'}{\partial \theta} \frac{\partial x' Ax}{\partial x}$ , instead of  $\frac{\partial x}{\partial \theta} \frac{\partial x' Ax}{\partial x}$ . Notice though that  $\frac{\partial x'}{\partial \theta} = \frac{\partial(Y'_n - X'_n \theta)'}{\partial \theta} = -\frac{\partial \theta' X'_n}{\partial \theta} = -X'_n = \frac{\partial x}{\partial \theta}$  resulting in exactly the same  $\frac{\partial x}{\partial \theta} \frac{\partial x' Ax}{\partial x}$  expression for the first order conditions with the one using the expression  $\frac{\partial x}{\partial \theta} \frac{\partial x' Ax}{\partial x}$  already in the notes. So, it essentially does not matter which one is used and in case you need it you may use either.

Stelios Arvanitis