Ryan’s comments – 01/24/2019

1. **Is it fair to assume that the information set of the econometrician is larger than the information set of the agent?**

Ryan is asking himself the same question. There is no obvious or easy answer. For sure there are not many exercises with SVARs or similar that takes such an assumption. However, it is important to keep in minds that many papers from the 80s argue that statistical approaches kill any information friction in the economy. Thus, for them the answer is yes. Nevertheless, modern economics seems to ignore such strand of literature. In any case, be aware that you may get complaints about it. The best would be to show some empirical facts that the agent’s information set is smaller than the econometrician’s one. Maybe some patterns in the revision of beliefs. In any case, keep in mind that what complicates the assumption in your project is that you deal with both data and model together.

1. **If the deterministic system of equations has eigenvalues which are complex, is it possible that by adding a stochastic equation (an exogenous state variable) then the eigenvalues became real?**

In a linear world the answer is no because there is a neat separation between the dynamic of the system and the nature of the shocks. Ryan suspects that is either not possible or not easy to do it in a nonlinear world. He suggests to think on a model with a particular endogenous state that when it is perturbed by a particular shock, the system displays boom-and-bust dynamics. The idea is to have three states: two endogenous and one exogenous. The model should have the feature that the interaction between two of them generates AR(1) patterns and the interaction between the other two generates boom-and-bust dynamics. For Ryan is the easier and right avenue. In this case, the starting point would be a clear economic intuition and write specific equations that support this idea. The alternative is trying to go more technical, understanding the mechanics on how to have shock-dependent eigenvalues and then build a story around this model. For this second approach you need to find the right technical book.