Structural Estimation Problem set1

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I think we would not be able to solely rely on either structural estimation and reduced form estimation, and we should consider both approach based on the property of cases.

One of the weakness of reduced form estimation is that, we cannot infer any mechanism behind the relationship between response valuable and explanatory valuable. Kean(2010) argues that we can never learn anything from natural experiments without a priori theoretical assumptions, by introducing the famous study by Angrist(1990). In the study, Angrist used the lottery number in Vietnam war’s period as an instrumental variable(IV) and examined the effect of military experience on subsequent earnings and he found that military experience bring 15 % decrease in earnings. However, Kean points out that, there might be some people who were not in eligible group for draft and think military experience will increase their earnings, and Wald estimation will exaggerate the negative effect of military experience. The problem here is that, it is not clear what causes the adverse effect of military experience on earnings.(e.g. school interruption, negative psychic or physical effect) Then, if we do not have any inference about the mechanism of the effect, it would be difficult to have useful implication for policy. Rust(2010) also claims that the atheoretic model typically cannot tell us anything about individual welfare, efficiency, or the behavioral response to hypothetical policy changes that have not yet occurred.

Also, there is the case that we cannot do any experimental design, since there is no explicit “structure” in the data just by looking at it in such case. Kean explained this by showing the case of life-cycle labor supply model. In this case, they estimate the inter-temporal elasticity of substitution.(elasticity of working hour against wage change) This can be estimated appropriately only by structural approach, using Frisch labor supply approach, and if we use atheoretic approach, using age as an instrument for wage, the elasticity will be lower estimated than the actual parameter. Thus, in such case, Kean claims that we cannot take reduced form econometricians’ “let the data speak’’ approach.

I think in cases like those above, where we want to have any deep implication by constructing theoretical model and actually there exist well-established economic theoretical model or functions which can describe the data well, structural approach will bring more useful analysis than atheoretic approach. Or like in the second case, where we it is difficult to make good experimental design, we have to rely on theoretic approach.

However, Kean’s arguments seems to be too biased toward structural approach for me. It might be not sure if we can always have “good” economic model which describe the issue well, or, in some cases we just want to estimate the simple result of some policy. In such cases, we might just have to rely on “let the data speak’’ approach.

Therefore, we should not rely on only one approach, but we should consider which form would be appropriate for our cases, based on the factors such as feasibility of experimental design, availability of economic model and characteristic of political questions which we want to answer.