

The structural approach and the experimentalist approach both have useful applications in certain cases. I do not believe one single approach is universally better than the other. Structural and experimental models differ primarily in how their assumptions are presented, as well as in the implications of their results. A structural approach tends to be more explicit in its assumptions. For example, these models may assume complete markets or a utility function of a certain form. One could argue that these constraints may be overly restrictive, although this is hard to prove. An experimental model, in contrast, is less implicit in their assumptions, which include assumptions underlying the theoretical model that the experimental model is based on, as well as those assumptions associated with data analysis, such as conditional independence and rational expectations. Thus, one type of approach may be more suitable than another based on how these assumptions affect the implications and validity of the results.

The structural approach might be preferable in a number of contexts. First might be when there is already an understanding of the mechanisms underlying the relationships between variables. Another context in which it is preferable to an experimental approach is if approaching the problem in an experimental way leads to endogeneity. Keane gives several examples of experimental approaches selecting inappropriate instrumental variables, which can bias results. Keane argues that Angrist (1990)¹, in using lottery numbers as an instrument for military service, may overexaggerate the negative effect of military experience (Keane 5)².

Although there are concerns about the validity of structural models, the model (and so, its assumptions) can sometimes be validated by taking the model to the data. Whether or not its results sufficiently follow the data, is subjective, of course. But, even if it does not fit the data, there are instances in which it still may be better than an experimental model in explaining wider patterns such as wages, educational choices, and welfare (Keane 16). It may be harder to take the model to the data when discussing policy implications, however (Keane 15). Here, more assumptions may be necessary. In this case, an experimental approach may be preferable. Lastly, using structural models allows for counterfactual analysis, which can be powerful.

On the other hand, an experimental approach may be more appropriate when theory in a field is sparse. In this case, experimental research may guide us to mechanisms that we may be able to use to formulate a theory. Of course, there must be some theory underlying in order to even know what variables to investigate, but performing experiments can help narrow and improve such theories. As emphasized by Keane, experimental approaches can be useful if their assumptions are justified, and preferably, made more explicit (Keane 18). Rust also echoes Keane on this opinion (Rust 22)³. Not being explicit gives the impression that the experimental models usually require less assumptions than structural models.

¹ Angrist, Joshua., "Lifetime Earnings and the Vietnam Era Draft Lottery: Evidence from Social Security Administrative Records," *American Economic Review*, June 1990, 313-336.

² Keane, Michael P., "Structural vs. Atheoretic Approaches to Econometrics," *Journal of Econometrics*, May 2010, 156 (1), 3-20.

³ Rust, John, "Comments on: 'Structural vs. Atheoretic Approaches to Econometrics'"

An example of a successful application of experimental models that I think Keane does not give justice to is difference-in-difference estimators. These can be useful if the underlying, separate groups being studied are similar to start with, or if they are different to start with, but their differences do not affect how they change with or without the treatment (Keane 13). In addition, I believe Keane's criticism of the experimentalist approach in the context of instrumental variables (IV) is too strong. IV can be quite useful in reducing endogeneity in these models, however, it is true that they can be used carelessly in order to feign robustness, and so not be appropriate. It might be more useful if experimental research better justifies their use of IV. But, there is nothing inherently wrong with using them. Keane should be more clear in claiming IV can be useful, if used correctly.

Ultimately, it seems that a structural approach leaves more room for ambitious questions, although on the surface, may require more assumptions. After all, if data does not exist for certain variables of interest, and there are no appropriate IVs, in the experimentalist approach, then the only room for ambition lies with structural models. Some of these models can be validated by taking the model to the data, in which case it is possible that it may imply stronger results than an experimental approach. If taking the model to the data does not tell us much, or if the assumptions underlying the experimental approach can be justified, however, the experimental approach may be preferable.