Difficulties and obstacles to full transparency of Models

Despite the obvious desirability of full transparency of databases and models, there are some objective obstacles that need to be considered and which advise against pursuing too high expectations in that regard.

➢ First of all, the requirement of transparency in data is subject to data ownership. Data are costly to obtain and to update hence those who produce them may want to exploit them commercially limiting access to others. This problem can be addressed:

A) through public (government or research) institutions who pay for those costs, for their maintenance and update, and make the data freely available to the general public.

B) through payment of a fee for access to the data.

➢ Another issue is that of ownership of the model (both design and related code), which represents often a significant investment in human resources, knowledge and even hardware.

Solutions for this issue are basically of the same type as for data ownership.

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➤ More difficult to tackle is the issue of <u>user or reviewer competencies</u>. In this regard, two basic categories of users need to be considered:

  ➤ Expert users, who are trained modelers and know specifically the model being considered and the programming language used to implement it

  ➤ A more generic type of stakeholder who may be interested in understanding or questioning the model results and assumptions. It could be a policymaker or simply a citizen who wants to raise his/her awareness of the issues being discussed but has no specific training on modelling.

➤ <u>Full transparency of the model has a practical meaning only for the first category of users</u>. Those subjects are the only ones who can effectively question the model assumptions, the underlying relationships, the correctness of the results and, in case, test the model for replicability of results.

➤ The second type of stakeholder can only understand the model assumptions, the results and their implications through the intermediation of a (trusted) modeler or expert user.

➤ Between these two main categories there are a number of intermediate ones, having varying degrees of training and expertise.

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➤ An interesting and useful role, for a non expert user, can be played by some very simplified and interactive models, of which a number of examples exist, that can exemplify the main interactions and relationships between relevant variables of the energy or economic system being considered.

➤ Some of those models are available on line and allow the user to play with some "levers" (in fact the main drivers of the system) and observe their impact on the dependent variables through some catchy and user-friendly graphic interfaces.

➤ This type of models are not necessarily more transparent but may prove to be an important "educational" and visualization tool also for policymakers: something that improves the understanding of the basic elements of the system and how varying each main parameter affects the entire system. In that regard, these models have their own "raison d'etre" and deserve some investment.

Thank you for your attention

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