PACBOARD

Systematically validating health economic models using the Probabilistic Analysis Check dashBOARD

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WHY PACBOARD?

1. Health economic (HE) models are not often publicly available and may lack transparency.
2. HE models are **not always systematically and extensively validated**.
3. Lack of validation increases the risk of a) errors in HE models informing health policy decisions, and b) taking harmful decisions.
4. Methods to validate HE models when the underlying HE model is not accessible are therefore urgently needed.

→ PACBOARD = **generic interactive dashboard** to **systematically explore and validate** HE models' inputs and outputs.

WHAT DOES PACBOARD DO?

CHECK IT OUT YOURSELF!

But if you rather read…

PACBOARD allows to:

1. Investigate (the plausibility of) values of model inputs and outputs using statistical criteria and interactive plots (Figure 1);

   e.g. costs < 0, utility values > 1
2. Investigate the relationships between model inputs and outputs using statistical criteria and interactive plots;

   e.g. correlation coefficients
3. Perform metamodelling to explore the relationship between model inputs and outputs (Figure 2);

   i.e. fitting a linear regression metamodel
4. Perform sensitivity analyses using metamodeling;
5. Investigate survival models

   e.g. do survival curves cross?

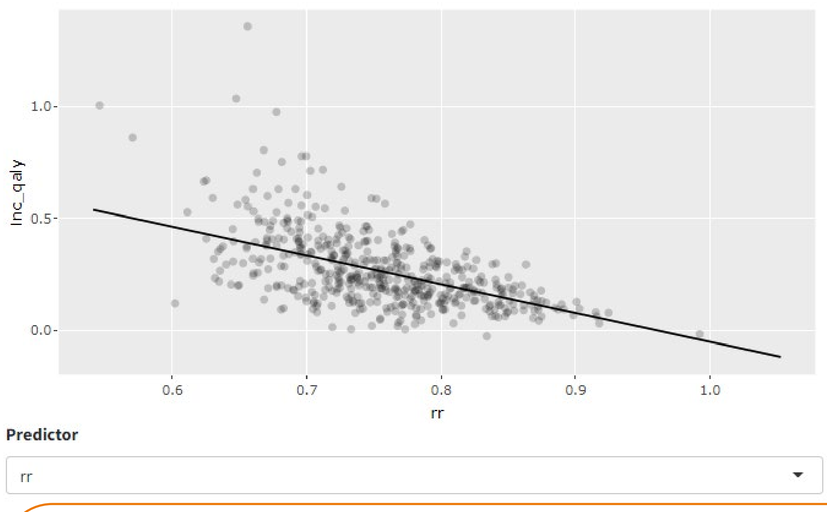

Figure 2: Fitted metamodel to investigate a HE model's input-output relationship

NEXT STEPS

We wish to implement the following functionalities:

1. Possibility to export a report of HE model validation checks
2. Adding multiple functional forms of metamodels

We still need to:

1. Test PACBOARD on more (types of) HE models
2. Investigate how PACBOARD may be included in HTA processes

HOW WAS PACBOARD DEVELOPED?

1. **Discussion with research team**
   a) Objectives of developing PACBOARD
   b) First functionalities
2. **Literature review**
   a) Validation efforts for HE models
   b) Metamodelling for (HE) models validation
3. **Review and presentation at LOLA HESG**
4. **Testing functionalities**
   a) Development of two HE models
   b) Including errors in developed HE models
   c) Does PACBOARD identify the errors?
   d) Metamodel validation

HOW TO USE PACBOARD?

Upload a .csv file containing your probabilistic inputs and corresponding (intermediate) outputs with the names of the inputs and outputs in the first row at https://bdsi.shinyapps.io/pacboard/. PACBOARD is supported by the *pacheck* R package (https://github.com/Xa4P/pacheck).

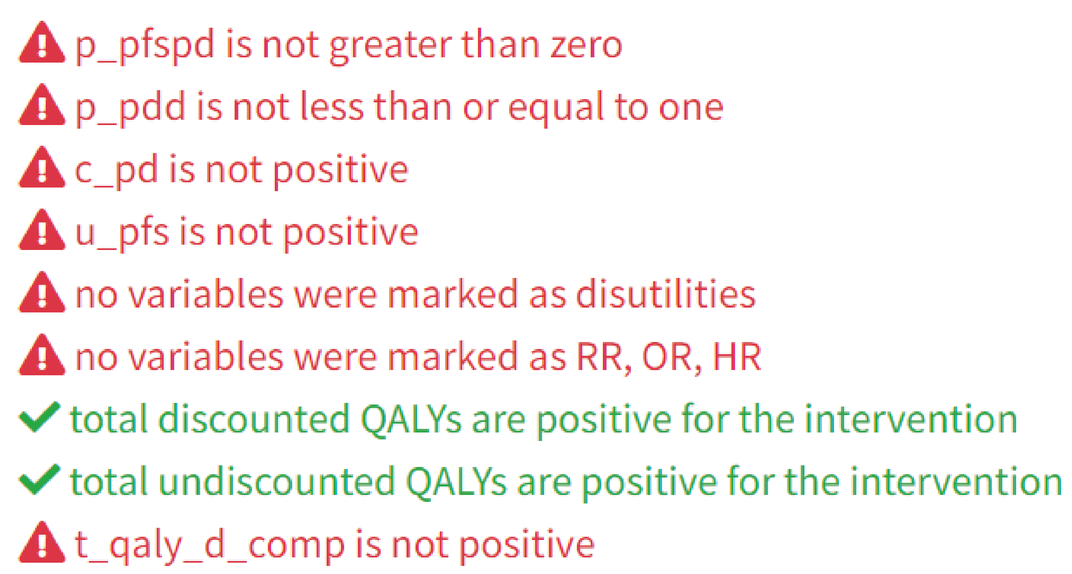

Figure 1: Screenshot of the results of the automatically-performed validation checks applied on HE model inputs and outputs

WHAT DOES PACBOARD NOT DO?

1. Providing automatic suggestions to improve HE models
2. Comparing the plausibility of model inputs and outputs versus external data

Interested?

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