Reviewer’s report

Title: Mathematical Modelling for Health Systems Research: A Systematic Review of System Dynamics and Agent-Based Models

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Reviewer: Yong Yang

Reviewer's report:

The topic is important and the research seems vigorous. However, refinements and deeper discussions are needed. Right now, it is more like a relatively shallow description. The major findings are not either surprising and profound.

First, I do not think ABMs are mathematical models.

Second, ABMs and SDs could be complementary to each other, if used wisely. However, by nature, they are totally different. If the authors deem the integration of ABM and SD as their major discussing point, they may strengthen their corresponding description and comparison.

Third, it is not clear what criterion that the authors have used to judge if an ABM or SD has limitations. Some limitations they identified seem more context or research question related rather than from a technical perspective.

Fourth, the two major conclusions do not seem very appropriate. The lack of modeling work in low-income nations may simply due to the less of health systems research in general, scarce of staff, data sources, and budget. For the hybrid model, less work does not mean such as models are needed.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript
Quality of written English
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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