Reviewer’s report

Title: Forecasting Imbalances in the Global Health Labor Market and Devising Policy Responses

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Reviewer: Peter Eibich

Reviewer’s report:

This study estimates the global need, demand and supply of health workers using data from 165 countries. The figures are then used to contrast gaps between need/demand on the one hand and supply on the other hand in 2013 and 2030. The findings indicate that there are both need-based shortages and demand-based shortages in the availability of health workers. While the need-based shortages are larger in developing countries, the demand-based shortage is projected to be higher in developed countries. This finding has important policy implications. For example, it suggests that the need-based shortage in developing countries could be exacerbated if developed countries draw on health workers from developing countries to address their demand-based shortage of health workers.

The present study draws extensively on previous work conducted for a WHO Report and a paper published in this journal. The contribution of this study is to re-estimate the models using a common dataset and to contrast the results. As noted above, the findings are very interesting and have important policy implications.

However, there are certain aspects of the paper that could be improved before publication.

Major points:

As noted above, the study essentially replicates the methods used in two previous reports/papers. As I understand it, these two previous studies were used as background information for policy recommendations. Thus, it seems reasonable that the aim of this paper is not to innovate or improve on the methodology, but rather to replicate the methods and contrast the results with each other. However, a careful discussion of the strengths and limitations of the methodological approach still seems warranted, after all the credibility of the results hinges on whether the chosen methods were appropriate. In the current manuscript, you simply state that an overview of the limitations can be obtained by a "careful read" of the previous two studies. I think this is not sufficient and the current manuscript should at least provide a short discussion over the most important strengths and weaknesses of the methods used in this study.

For example, when reading the paper I wondered why the median attainment level was chosen as the benchmark for the estimates of health worker need. While I am unfamiliar with the SDG tracer indicators, an attainment of 25% does not seem to be particularly high. However, I could not find a justification for this analytical choice either in the current manuscript nor in the
previous report. At the same time, this choice has of course important implications for the results - as far as I can see, setting the desired attainment level at a higher rate would mean the estimated health worker need is likely to be even higher.

Another example is the estimation of health worker supply. This explicitly assumes that past trends will continue into the future. However, it is well acknowledged that in most developed countries population aging will lead to higher retirement rates in the future, which may result in skill shortages in certain sectors. Unless trends in the healthcare sector systematically deviate from the overall trend, this implies that the supply for developed countries is likely to be lower than estimated.

As stated above, I agree that it is reasonable to simply replicate the methods from the earlier reports in order to contrast he findings. Nevertheless, I think you should provide a short overview over the strengths and limitations of the methods, given that these directly relate to the strengths and limitations of their current study.

Minor issues:

I think in some instances you should provide a bit more details for the interested readers. For example:

- In the appendix, it should be stated which GLM was used to estimate the demand regression equation.

- The choice of the lags in this equation seems somewhat arbitrary. I noticed that in the previous study it was stated that these were chosen using a model selection procedure. I think it would be helpful to state this in the appendix.

- It would be helpful to provide a link to the report in Reference #1.

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