Author's response to reviews

Title: Impact of a fixed price system on the supply of institutional long-term care: a comparative study of Japanese and German metropolitan areas

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Author's response to reviews: see over
Dear Dr Chiatti,

Re: Manuscript reference No. 1212135865103361

Please find attached a revised version of our manuscript “Impact of a fixed price system on the supply of institutional long-term care: a comparative study of Japanese and German metropolitan areas”, which we would like to resubmit for publication as a research article in BMC Health Services Research.

The comments of the reviewers were highly insightful and enabled us to greatly improve the quality of our manuscript. In the following pages are our point-by-point responses to each of the comments of the reviewers.

Revisions in the text are described below in this letter. Because there are many changes including the structure and linguistic improvements according to the proposals of reviewers, we are submitting the manuscript without showing each change in the text. We hope that the revisions in the manuscript and our accompanying responses will be sufficient to make our manuscript suitable for publication in BMC Health Services Research.

We look forward to hearing from you at your earliest convenience.

Yours sincerely,

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Please revise the discussion section of the article. Currently, this section only presents the major findings of your research. However, it would be interesting to know, how your results/findings relate to the work of other authors. In particular, I would expect a discussion of other studies on price regimes and supply in long-term care as well as other related areas (e.g. hospital beds, number of GPs, etc.).

We now included study results for the LTC sector and a further health care area which were consistent with our findings [16-18,20,21] in the “discussion” section. Furthermore we presented consequences of the change from cost-based pricing to fixed pricing on access in the hospital sector in the USA [19-21] in the “background” section. We referenced studies about this topic in the sections background, discussion and political implications.

Moreover, I suggest that the authors also revise the political implications of their research. Notwithstanding the impressive results of the empirical inquiry, it would be valuable to include other, more critical attitudes or even empirical work on liberal price regimes as well and in particular to discuss possible effects on welfare distribution as well as on access to care services for groups with low socio-economic status.

Following your suggestion, we presented the current approach of the Japanese government to increase rooms primarily thought for users paying hotel costs set individually by facilities in the “political implications”. Besides a positive effect of free pricing on supply which can be estimated by our study results, we pointed out the risk that persons with low income are dumped by referring to studies about dual nursing home market in the USA.

Please discuss whether occupancy rate is a suitable indicator (section methods – design). Are there any other factors, which could explain any in- or decrease in occupancy rates?

In the “dependent variable” part under the “methods” section, we discussed why occupancy rate is not suitable for our study even though it is often reported in official statistics. In addition, we mentioned limitations of bed density for use as dependent variable in the “limitations” section.
Overall the paper is not clearly motivated. Why do we care about the impact of the pricing scheme on supply? The authors can do a better job at telling this story.

We modified the “background” section to emphasize the relationship between fixed pricing and inequitable supply and the importance of institutional modifications to the pricing system. We also referred to the fact that the Japanese LTCI law implies the responsibility of municipalities for need-oriented provision for each municipality, based on the idea of “aging in place”. We hope that the significance of modification of pricing system against geographically inequitable supply has become clearer now.

The authors need to weed out the non-essential from the paper. I found myself bogged down in the detailed description of the various variables. Clearly a discussion of key variables is important, but the discussion was much broader than that. Also, I don’t know what to make of the additional files that were provided for review. I assume that these are not to be included in the article, but the volume of information was overwhelming to the point that I struggled identifying the wheat from the chaff.

We modified the structure of the “methods” section according to the specific proposals (see below), and also deleted some sentences. In the new section “conceptual model”, we explained the theoretical motivation for each variable. We also removed some sentences referring to additional files which are less significant for the results and corresponding bivariate correlation matrixes.

Transitions between the paper’s sections are weak; the flow of the document is hampered by lack of transitions and a clear flow.

We structured the transitions more logically and hope that the text reads more easily now.
In the background section the authors state: “it is expected that fewer family caregivers will be available in the future.” This is a statement that should be backed up with a reference or data.

References were added for effects of societal change on long-term care [5,6]

The background section discusses the insufficient and not evenly distributed bed supply in Japan. This implicitly assumes that IF residents should not be required to move. I understand the desire to be near family and what you are familiar with, but that is an unnecessary constraint on this model in my view.

Thank you for your comment. In Japan, “aging in place” is one of the broader political aims, enabling elderly to stay in their community. We added a short explanation of “aging in place” and references [10,11] in the “background” section.

In the analysis section the authors have a paragraph that starts with “The unit of this analysis is the municipality…” I am confused by the purpose of the paragraph. It is poorly written. My thought is the paragraph is not needed at all.

According to your proposal for major compulsory revision, we changed the structure and order of parts in the “methods” section as follows: conceptual model -> hypotheses -> data sources -> dependent variables -> explanatory variables -> analytic models and regression analysis -> analysis periods

The part starting with “the unit of this analysis...” was shortened and moved to “analytic models and regression analysis”.

According to your comment "My thought is the paragraph is not needed at all", the paragraph “the unit of this analysis...” was shortened and integrated in the “dependent variables” part.
In the “Incentives (IF Tokyo)” section, the authors state “Ideally, there is growing demand and no competition.” I do not understand why a growth expectation or desire has any relevance on the research question.

We reorganized and shortened the methods section, including the part on control variables, and added a new section “conceptual model”. Within the economic theory, incentives (subsidy) is one factor determining supply. The section on “Incentives (IF Tokyo)” was integrated into the broader new section on “profit/political intervention”. The sentence “Ideally, there is growing demand and no competition” was deleted.

The authors have sections for “control variables” and “explanatory variables”. I don’t understand the distinction the authors are trying to make as both are right-hand-side variables.

We changed the structure, i.e. listed the control variables in explanatory variables section and not in a separate section.

The five results tables are very cumbersome. I understand the desire to include detail, but the amount of information I think makes it difficult to glean what is most important. A few suggestions to improve. First, use much short variable names. Second, don’t put the n for every variable (perhaps a range of n at the bottom of the table for tables 1 and 2. Third, put the SD in parenthesis on tables 1 and 2. Fourth, settle on some number of decimal places to show.

Thank you for your valuable recommendations. We adopted the tables accordingly:
- We shortened long variable names and deleted some appertaining information, e.g. about years of data or reason for being adapted as variable such as “predisposing” and “enabling”, if explanations are given in the text.
- We deleted the n for each variable and create a new line for the range of n at the bottom of each column.
- We put the SD in parenthesis (Table 1 and 2)
- We unified the number of decimal places to two digits.
In the first paragraph of the background section, the authors discuss the number of 65+ adults. Should the third sentence read “The increasing proportion of the very old...” rather than “The increasing numbers of the very old...”?

We actually mean both and therefore changed the phrase to “The increase in very old population”.

The authors wrote “none-fixed price” in a couple of places. It should be “non-fixed price”.

We corrected the term accordingly. Thank you.

In the “institutional background for comparison” section the authors present a detailed review of the Japanese and German systems. The level of detail is quite good, but the level of information is hard to digest. I recommend that using a table to make a side-by-side comparison of the two systems would be easier for the reader and more informative generally.

Following your suggestion, we created a table and accordingly shortened the text.

In the “Need (Ifs/PNHs in Tokyo and NRW)” section, the first sentence should read “To indicate...” not “To indicating...”.

We corrected it. Thank you.

[Further changes]
- A sentence about the relatively large standard deviation of density of IF beds in Tokyo was added in the “description of equity/inequity in distribution” part under the “results” section to describe the extent of inequity.
- The name for the dependent variable “additional bed density” was changed to “change in bed density”, because the average change was negative (table 3) due to faster increase in aged population in some municipalities.