Reviewer’s report

Title: Widening disparity in the geographic distribution of pediatricians in Japan

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Reviewer: Hiroo Ide

Reviewer’s report:

In the manuscript, the authors aimed to elucidate the reality and the factors affecting the current geographical maldistribution of pediatricians in Japan. Although this is an important social issue as the authors stated, I found methodological flaws and questions in the manuscript.

Major compulsory revisions

1. The authors should write the manuscript in a more coherent manner. There are some cases where sequential paragraphs did not seem related to each other at all or where there are different topics within a paragraph, which I found disorganized.

2. There are two problems in their regression analysis. First, I am not sure why the authors used only two factors in their multiple regression analysis. They mentioned some possible factors which might have affected geographical distribution of pediatricians in the Introduction and in the Discussion. However, they all were omitted from their analysis. (from p.p. 5, l.12 to p.p. 7, l.6). At least, they should explain why they cannot incorporate these factors into their analysis. Second, CWPs per 100,000 population under 15 years old) were used for both an dependent variable and explanatory variables. Though, it is not used as it is and is embedded in the explanatory variables, using the same variable in both the left hand side and the right hand side of regression equation is quite disturbing.

3. The arguments about an impact of Ikyoku on distribution of pediatricians are not convincing. The authors say that the decline of power of Ikyoku led to concentration of pediatricians in urban areas. However, it is just their conjecture as their argument is not based on any analytical results of their papers or others’. If the authors believe that there is such a causational relationship between them, they must present an evidence.

4. I could not obtain the detailed information about the data supplied by Nippon Ultimate Inc., which was used in the current study. In my view, if the company can aggregate physicians’ data by age, sex, facility type etc., it must have acquired original data from the government or government statistics. Moreover, although the authors obtained data from Minryoku (the power of citizens, which is a famous data source gathered and edited by a private company), they should use data from original statistics. Anyone can access to those statistics easily and freely from websites. (from p.p. 11, l.5 to l.13)
Minor essential revisions

1. The authors divided SMAs based on their results of principal component analysis. Providing to readers descriptive statistics for each SMA (Group I to IV) is helpful.

2. The authors were seemed to assume that pediatricians working in rural areas expect to earn a higher income. Because more pediatricians actually tend to practice in urban areas, the authors concluded that the financial incentive does not work in pediatrician distribution. However, I wonder that pediatricians escape from less urbanized areas because the number of children decreased in such areas and pediatricians cannot get enough earnings. This idea explains financial incentive reversely affects pediatricians' behavior as the authors assumed. (from p.p. 15, l.5 to l.12)

3. I am not sure what ‘social policy’ the authors considered successful. (from p.p. 16, l.3 to l.4) Also, I am not also sure what kind of program created by prefectural governments aimed at distributing medical resources. (from p.p. 18, l.2 to l.3) More explanation is necessary here for the readers to understanding.

4. In the figure 1, the authors provided the number of pediatricians per 100000 population under 15 years old in parentheses in 2002 and 2007. The numbers in 2007 were larger in all Groups than those in 2002. This means even if a difference in the number between urban areas and rural areas became larger, there was no group where pediatric workforce per 100000 population under 15 years old supply deceased. The authors should mention this point.

Discretionary revisions

1. For non-Japanese readers, authors should provide more information about Japanese SMAs. For example, how many population each SMA has, how often geographic boundaries of SMAs’ changed, what kinds of local health policy made based on SMAs etc. (from p.p. 8, l.2 to l.8)

2. I think CWPs is authors' original idea. If they know similar concept with CWPs, they should introduce other examples. (from p.p. 8, l.10 to p.p. 9, l.6)

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Not suitable for publication unless extensively edited

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare I have no conflicts of interest.