Reviewer’s report

Title: New evidence on the financing equity in China’s health care reform - Case study on Gansu province, China

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Reviewer: Gemini Joseph Mtei

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General comments:

The authors have addressed an important area of enhancing equity in the current debates of reforming health system financing towards achieving universal coverage. Ensuring fairness is one of the prerequisite of health system financing. The authors have applied common approach in the analysis of progressivity and the findings of this study would be relevant in the reform of health system financing in China and other developing countries.

However, there are some issues which need revision before this manuscript is published.

Compulsory revisions

1. Pages 5-6. “In particular, this package incorporates innovation in health care financing, such as: an increase in government health input, the introduction of new types of health insurance (known as Urban Resident Basic Medical Insurance scheme and New Rural Cooperative Medical Scheme), an expansion in health insurance coverage for the uninsured, and thus, a reduction of OOP health payments”

The last part of this sentence implies that the reduction of OOP payments is a result of the above mentioned innovations. If this is true you need to put a reference that explored causality between changes in health system financing and the reduction in out of pocket payments in China; and if it is the authors assumptions they should explain this as expectations rather than causality.

2. It is stated in Page 7 that “other data were mainly tariff for tax and copayment for public health insurance, which were collected from local statistic yearbook”. However, the authors don’t say how taxes and health insurance copayments were allocated to households. Clarify

3. Page 13. The recall period for information on out of pocket payments is not stated and it is not clear whether out of pocket payments were both for outpatient and in patient care. Clarify

4. It is not clear what was the measure of living standard in this study. It is stated in Page 7 that gross income was collected in this survey. However, the authors
don’t state whether they used total income, adult equivalent or per capita income as a measure of wealth. Did the authors adjusted health care payments for household size and composition? Clarify

5. The study included the analysis of progressivity of general tax among other financing sources. However, the authors don’t explain the type of taxes included. What types of income and consumption taxes were included? Was there limitation of data to allow individual tax sources analysis? Clarify

6. It seems that public health insurance in Table 3 page 18-19 combines Urban Workers Basic Medical Insurance (UWBMI), Urban Resident Basic Medical Insurance Scheme (URBMI) and The New Rural Cooperative Medical Scheme (NCMS). However, the explanations in pages 9-10 indicates that the benefit package between NCMS and the other two is not the same. Since revenue from these schemes is not pooled together and benefit package is not the same it would be important to check progressivity within individual insurance schemes. Formal sector schemes might hide inequities existing within informal sector schemes or vise versa, if the analysis is not disaggregated.

7. The authors need to present standard errors of the Kakwani indices of the financing sources in table 3 page 18-19 in order to test their significance. These may be obtained through convinient regression. Refer, O’Donnell, O., E. Van Doorslaer, et al. (2008). Analyzing Health Equity using Household Survey Data: a guide to techniques and their implementation. Washington, DC, The World Bank, Pages 174-175

8. Table 3 in Page 18-19. I would recomend that you also present the overall Kakwani index. This would help to judge whether there are changes in the overall health financing system after reforms in health insurance. The overall Kakwani index can be obtained by taking the weighted sum of individual financing sources Kakwani indices. The weights can be derived from the proportion of each financing source in total health care financing (Table 1 in page 7)

9. Page 21. “In some developing countries, OOP payment is not a challenge for the high- income group to consume medical goods or services, even higher quality care at higher price, whereas the low- and middleincome groups cannot afford to seek medical service, even basic medical treatment” This sentence requires reference (s)

10. Page 21. “In our study, unfortunately, if we can say that, the OOP payments are progressive in all situations, implying the rich have a stronger ability in health care utilization, whilst the poor does not have enough access to medical services” This sentence is difficult to follow and understand, revisit

11. Page 20. “... eg., in 2010, value-added tax (VAT), sales tax, and consumption tax account for 52.35%”

What is consumption tax in this example? Note that VAT and sales tax are also
consumption taxes. Carify

12. Page 20. “...and achieving universal coverage tends to be downward in progressivity”
Not clear of the meaning, revisit.

13. Page 20-21 “However, it is less important reason for that, or the reason explaining the tendency of falling degree of Kakwani index”
Not clear, revisit this sentence

14. Page 25. “OOP payment still accounts for the highest share of health care financing, resulting in a minor role has been played by health sector reform, and consequently a limited health care utilization”
This sentence is not clear, revisit

15. It is also important to point out as a limitation that the approach adopted in this study (using kakwani index to explore causality) does not allow an establishment of causality between observed changes in financing progressivity and reforms in health system. One cannot say with certainty that it is the expansion of Urban Workers Basic Medical Insurance (UWBMI) that has led to observed changes in progressivity. Other factors which are difficult to control using the adopted methodology in this article might influence the observed changes in progressivity. Consider this limitation in your article

Grammar/ typos and other minor corrections

16. Page 7 “Equable” replace with Equitable

17. Page 8 “...while the budget mainly obtains through a variety of tax revenue”
Revisit this sentence. It sound like the authors want to say ‘budget is mainly financed through...’

18. Page 2. “Public health insurance presents different financing distribution in urban and rural areas (city: 0.0742 in 2002, 0.0661 in 2007; town: -0.0615 in 2002, -0.1436 in 2007)”
Use urban and rural consistently instead of mixing with city and town

19. Page 20. “The taxpayers are peasants, most of whom are classified into the group on low-income”
revisit, probably say ‘most of whom are classified into the low-income group’

20. Page 20. “This improves the poor makes more contribution to public health insurance than they used to be, and consequently the value of Kakwani index is decreased”
Wrong use of ‘improves’, revisit
21. Page 22 “One the other hand” replace ‘One’ with ‘On’

22. Page 24 “Still, we look forward to cross-provinces comparison of financing equity will be conducted in future”
replace ‘will’ with ‘to be’ and remove ‘Still’

Discretionary comment

23. It would be better to conduct dominance test between health financing concentration curves and income lorenz curve to confirm progressivity of financing sources. In addition, because this study explores changes in progressivity, it would be better to undertake dominance test between concentration curves for 2007 against 2002. The below reference might give you guidance to do this.


**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that i have no competing interests