Reviewer’s report

Title: Health insurance and the 'inverse care law' in Russia

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Reviewer: Dele Abegunde

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This article titled: Health insurance and the ‘inverse care law’ in Russia aims to investigate trends and determinants of health insurance cover in Russia and its relationship with health services utilization including and investigation of the role of the private sector. The paper will likely be of interest to a section of readers; however, there are significant grounds for improving the cast of sections of the article. In general, the article could be better focused and clearer in its reporting.

Some specific observations are made below:

1. Introductory section

The objective as indicated in the abstract section is fairly inconsistent with the way it was cast in the introduction section. For instance, in the abstract section, it states:

"This paper aims to study the completeness and determinants of healthcare insurance coverage in Russia, and its relationship with health service utilisation, as well as the role of the private sector".

Where as in the introduction it is stated that:

"The aims of this paper are first, to investigate trends and determinants of access to health insurance, updating earlier analyses, [11] and second, to study the effects of insurance and other variables on health care utilisation, both state and private, in transitional Russia after 2000."

The words trends and completeness of coverage are not in my view substitute and it introduces significant lack of clarity in the remaining sections.

Though the "inverse square law" is part of the phrasing in the title, only a passing reference is made to it in the introduction. I am not persuaded that it is a universally known law or concept, so it needs to be described in the introduction beyond mere reference. In addition, this law was not obviously related to the analysis, results and discussion in general. It therefore feels aberrant in the title.

2. Methods section

The statement:

"Household income per person was approximated by dividing total household
income by the square root of the number of occupants."

Give references for this maneuver and if it is a concept the authors are introducing to the literatures, then they should explain the basis.

3. Statistical analysis.

Needs a lot of improvements in construction and logic of presentation. I perceive that there is a lot of omitted but important information to be rendered here. How was the multivariate analysis done? What tool was used if there are any? The statement: "multivariate modeling" says nothing to help here. As the authors know may very well know, there are countless number of multivariate models.

After a lot of re-read did I come to understand the second statement in the second paragraph under in this section. In effect, you have used one analytical model but have introduced some variables in stages? This is often a diagnostic procedure in econometrics, in addition to other tests of misspecification and identification. Is this what the authors were aiming at? They have not stated why the approach their elucidations this way.

Again the authors need to consistently specify their methods. For instance, this statement in the abstract:

"Annual trends in insurance coverage were measured. Cross-sectional multivariate analyses of the determinants of health insurance and its relationship with health care utilisation were performed in working-age people (18-59 years) using 2004 data."

Reads to me as if one analytical methods was used for trends (and this is unclear which, of the panels form 2000-2004, and with regards to determinants of insurance and health utilization only 2004 panel was used. If this is correct, it will be interesting to know why the authors chose to go this way. Ordinarily the access to cross-sectional panels provides robust opportunity for a superior panel estimation of this relationship over time which is in the objective as stated (TRENDS!).

However, another impression of the analysis is conveyed in this section of the article and in reporting the results. For instance, the first statement in the results section suggests a trends analysis between 2000 and 2004?

4. Results Section

In this section I get to now understand that a regression analysis was done on 2004 cross section and the modeling used is unspecified. I think Table 2 is the summary of the variables employed in the regression, but it is not clear if tables 3 and 4 are results of regression analysis at the first instance. To glean this from the reads and re-reads of the article will can be excruciating to the reader. If they are, what do the figures in parenthesis and those in bold type represent? Assuming that those are the confidence intervals, as I suspect they are, and those in bold type are the significant estimates, then it would be interesting to
state the degree of significance used. This is standard reporting.

A previously specified model as mentioned here should be provided with reference otherwise briefly described.

This statement in the last paragraph of page 7 is in my view, too strongly drawn from table 1. Is this increase of 1% significance? Between which periods in the panels was the increase? The significance of this increase will be difficult to exhibit without the appropriate model.

"At the same time the small minority with supplementary (private) insurance also increased from 2% to nearly 3%, which in three quarters of cases was paid for by their employer (Table 1)."

Generally speaking, it would be better if the authors recast the results section specifically to address the objective a stated. The last two paragraphs in the results section for instance, discussed utilization generally, but not in relation to insurance cover - an impression of what would be considering the second part of the objective statement-

"……second, to study the effects of insurance and other variables on health care utilisation, both state and private, in transitional Russia after 2000."

It is not clear to me when the authors may be referring to private health insurance of private health care. This distinction is important for clarity.

5. Discussion.

The discussion section is interestingly writing, however, it is doubtful form the reporting of the result section that many of the views expressed as they have been are tenable. Obviously this section indicates an understanding of the empirical situation by the authors, but I am afraid, the depositions in this section had not been made obvious in the results reporting.

6. Minor comments.

The article will benefit from some editorials principally for consistency and to correct a number of typos.

The reference section will need some additional editorial. There are a number of abbreviated journals. Though titles of references were generally bold faced, references 15 and 17 are not, probably this may be because there are not exactly journal articles?

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

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