Reviewer’s report

Title: Widening social inequality in life expectancy in Denmark. A register-based study on social composition and mortality trends for the Danish population

Version: 1 Date: 25 September 2012

Reviewer: Herman Van Oyen

Reviewer’s report:

I thank the editor and the authors for the opportunity to review this manuscript.

The manuscript has several strengths:
• The long time period covered
• The quality of the data
• The research question is well defined, as is the discussion and the identification of some limitations.

However, I have some methods related questions. I acknowledge that some of these question would ask for a re-analysis. However I do not see this as a necessity, but I would invite the authors to reflect on them and they may argue that their approach is appropriate and then it suffice to take up some of these remarks in the discussion and/or just in the reply to the reviewers.

1. Information on education was only available up to age 65. The authors approach this limitation in 2 ways. A partial life expectancy which is a correct approach. I have major problems with the second option, the extension to go over the age of 65 years and the assumption that the mortality is equal for all educational groups. I do not think this is a correct way. A more correct assumption would have been to have a stable relative mortality rate ratio between the different educational groups. The authors suggest in the discussion that the bias introduced by the assumption they take is minimal, but this statement is not substantiated.

2. Educational quartiles: it is unclear if the quartiles are gender specific as the length of studying has been gender specific and changes in the gender difference has occurred of time. This would have doubled the current age/calendar year strata.

Minor remark.

1. The authors did not classify the 4 fixed educational using the ISCED classification. For the international readers a link to this ISCED classification may be useful

2. Table 2 – discussion: how much is the observation that “the increase of the life expectancy in the lowest income quartile among women was larger compared to the increase in the high mean and low mean income quartile” related to differences in the smoking experiences of these population groups.
3. Other authors have used a relative position of social groups (Pamuk ER, Valkonen T) instead of quartiles. This could be taken up in the discussion.

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

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

I declare that I have no competing interests