Author's response to reviews

Title: Is the core-periphery labour market structure related to perceived health?
Findings of the Northern Swedish Cohort

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Author's response to reviews: see over
Dear Professor Cullen,

We thank you and the reviewers for the valuable feedback on the manuscript *Is the core-periphery labour market structure related to perceived health? Findings of the Northern Swedish Cohort* (Ms. No. 1224737272581105). We have revised the manuscript taking the suggestions from the reviewer into account, and provided a point-by-point response to the reviewers’ comments (see below) and the language has been checked by a professional English language editor.

Looking forward to your response!

Kind regards,

Anna-Karin Waenerlund, Corresponding Author

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Reviewer's report:
Generally I think that the authors have performed a thoughtful and thorough review of the paper. They have responded to all my concerns. However, I still have some minor suggestions that could be discussed in the paper.

1.1 The authors control for previous psychological health status at 30. It is correct that adjustment for previous health status strengthens claims for causality. However, in the analyses on self-rated health the authors should rather adjust for previous self-rated health (not included in the survey) as there are significant differences between the two health measures. The implications of adjusting for previous psychological health should therefore be discussed.

Response: We want to emphasize that we indeed adjusted for self-rated health, i.e. global, not psychological health, at age 30 in the analysis of self-rated health as outcome. Previous psychological health was only used as a covariate in the analyses with psychological health as the outcome. We have clarified these sections: Method (page 8-9) and Discussion (page 16) and table 2 and 3

**Psychological distress** at age 30 (indicator of earlier psychological distress) and 42 (outcome) was measured with a question that inquired whether the respondent during the last year had experienced symptoms of psychological distress (restlessness, concentration problems, being worried or anxious, palpitations, anxiety or panic or other nervous problems), with the response options ‘yes’ or ‘no’.

**Poor or average self-rated health** at age 30 (indicator of earlier self-rated health) and 42 (outcome) was measured with one question, ‘How do you rate your general health?’, with response options: ‘good’, ‘average’ or ‘bad’[19].

We chose to adjust for psychological distress at age 30 but also explored adjustments at age 16 and 21, with comparable inferences. As corresponding measures of self-rated health were **collected at age 30 for the first time, we could not explore adjustments for self-rated health at age 16 and 21 but were left to use self-rated health at age 30 as an indicator of previous health. However, the observation that adjustment for psychological distress at age 16 or 21 resulted in less attenuation than did the adjustment at age 30 suggests that health status at age 30 might be an appropriate age for consideration of health selection in this cohort.

1.2 The authors might “overcontrol” their models when adjusting for socioeconomic position as both peripheral employment and socioeconomic position includes the category “self-employed”. What are the implications?
Response: In the revised manuscript, we bring up this limitation in the discussion and consider the risk of over adjustment (page 16-17). However, when we performed the analyses we did consider this possibility of over controlling but weighed the limitations against the gains. As we found it important to not exclude self-employed from the sample, we did take the risk of over adjustment. Further, we think that self-employment (e.g. insecurity, variation on working hours) in relation to peripheral employment mirrors different dimensions of the phenomena than in relation to SEP (e.g. high degree of control and decision latitude), which is why we decided to use it in both SEP and peripheral employment. If we have over adjusted, this would imply an underestimation of the ORs, in analysis where both variables are included.

Another limitation of this study is that there is a risk of over adjustment when adjusting for socioeconomic position as ‘self-employment’ is also incorporated into the measure of peripheral employment. Over adjustment would lead to an underestimation of the ORs resulting in a more conservative of the analysis.

1.3 The authors could also mention that controlling for health status at age 30 could also reflect consequences by peripheral employment before 30 years of age.

Response: The reviewer is pointing out an important issue, that peripheral employment prior age 30 could already have implications to health status at age 30. This is indeed correct and as we have no data to address this issue, we can only point it out as a limitation to this study. This issue is addressed in the discussion (page 16)

Further, it is important to consider that health status at age 30 could reflect negative health consequences of peripheral employment before that age. Thus, our findings may underestimate the effects of peripheral employment on health status.

Level of interest: An article of importance in its field
Quality of written English: Acceptable
Statistical review: No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests:
I declare that I have no competing interests

Reviewer's report 2
Title: Is the core-periphery labour market structure related to perceived health?
Findings of the Northern Swedish Cohort
Version: 2 Date: 9 November 2011
Reviewer: Alfred Wagenaar
Reviewer's report:
The revised manuscript has been improved a lot. The authors have dealt well with most of the concerns, which has also improved the readability of their manuscript. However, a few issues still need attention.
2.1. Measurement of peripheral employment. Thank you for the clarification regarding the calculation of the ‘exposure to peripheral employment’ measure. I agree with your statement that this measure can “be viewed as the average degree of peripheral employment across the entire 12-year period”. However, I think it is important to mention some shortcomings of this measure in the discussion section. For example, I think this measure is somewhat arbitrary in that it equals the duration of peripheral employment to the degree of exposure to peripheral employment. This means that, for example, a higher score can both reflect (1) a longer duration of less peripheral employment or (2) a shorter duration of more peripheral employment. Moreover, the measure does not take into account the time point at which someone had peripheral employment. I can imagine that these aspects may partly account for the findings in the current study as they make the ‘exposure to peripheral employment’ measure less accurate.

Response: This issue that you bring up is vital and is clarified in the discussion and brought up as a limitation. You are correct in your interpretation that a high score could both be a result of being long term in an unstable contract or shorter in a more peripheral contract. Also, the issue on when the exposure occurs has not been explored in this study; we are however in the process of submitting a paper that further clarifies this issue. This issue has be considered in the discussion section (page 17).

Furthermore, another limitation regarding the measure of peripheral employment is that a high score could either imply longer duration in peripheral employment positions or shorter duration of a more peripheral employment contract. Also the timing of the exposure is not considered, which would be an important issue to consider in future research. These issues could possibly make the measure less accurate.

2.2. Psychological distress. After your clarification of the psychological distress measure for males and females, I noted that the cut-off points (for the worst quartile vs. the rest) are different for both genders. Therefore, it is questionable to what degree both genders can be compared with regard to psychological distress. Although both groups may be considered to be ‘relatively’ the same (i.e. worst quartile vs. the rest), in ‘absolute’ terms they are different. Moreover, for females this measure is also different in comparison with their psychological distress measure at age 16 and 21. Therefore, I would suggest mentioning this as a limitation in the discussion section.

Response: Yes indeed, in absolute terms the cut-off points are different for men and women and no direct comparisons regarding the absolute numbers should be made between the genders, which are indeed important to emphasise in the discussion (page 16).
It is important to note that different absolute cut-off points were used for the psychological distress outcomes in men and women. The cut-off points were based on the worst quartile vs. the rest, which implies that no direct comparison can be made between men and women regarding the absolute levels of psychological distress.

2.3. Practical implications. As practical implications of the current study you mention that policy measures are needed. Can you give some examples of or suggestions for such policy measures, which can be taken in Sweden or in general?

Response: Some examples on suggestions for policy measures recommended based on this study are to improve basic conditions for the employees. Further, to make sure that all employees regardless of type of employment contract should be given the prerequisites for maintaining a good health. The responsibility of creating good prerequisites should be held by the employer and the policy maker, not at the individual worker. The policy implication has been expanded in the discussion section (page 18-19)

Policy changes should aim at reducing health inequalities between those employed in the core and the periphery of the labour market. In this longitudinal study we found that those with experience of long-term peripheral employment have worse health status than those with long-term permanent employment. Although the present study does not focus on specific targets for intervention, our findings suggest that policymakers should aim towards improving the working conditions particularly for those in the peripheral workforce, e.g. health promoting work place measures should also include non-permanent employees. Further, policy measures should help to promote transitions towards the core of the labour market, prevent transitions towards the periphery and help those who potentially are trapped in peripheral employment.

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: No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests:
I declare that I have no competing interests