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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Weigh(t)ing the dimensions of social vulnerability based on a regression analysis of disaster damages" *by* Vincent David Corvin Heß

Anonymous Referee #1

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The paper contributes to the discussion on vulnerabilities to disasters by combining PCA and regression analysis, thereby improving the indicators used in the PCA. By doing this the scientific significance of the paper is considered good. However, there is a need for improving the scientific quality and presentation quality of the paper. Regarding scientific signifiance and quality, the paper should discuss the indicators used in the PCA and Regression model beyond providing short references to previous studies. True, the author engage in discussing possible reasons for why some indicators fall short of explaining vulnerabilities. A case in point is unemployment which is shown not to have any explanatory power. We know that unemployment is calculated as the share of those actively seeking work plus those having work; that is, the labour force. A

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certain number of the unemployd is receiving unemployment benefits and as such not necessarily poor. Long-term unepmployed and outside the labour force could be more important. In short, the author should do some independent thinking on the subject, not just rely on previous studies. Furthermore, the author briefly states that the choice of indicators is constrained by available data. This is true, but we are left wondering whether other indicators might have been available. For instance, an unemployed person could very well have a spouse with a decent income and therefore not count as vulnerable; that is, what about data on family and households? The same goes for females. And tax payments may overlook that the most affluent citizens might be in a position to avoid tax, thereby potentially causing problems for the reliability of the data. From the paper, it seems that the regression analysis was conducted by using all the indicators (plus the added ones), without removing variables that did not show any explanatory power. I suggest the author do some more work on the reggression analysis in this respect; tahat is, one-by-one removing variables with lowest significance to see what impact this will have on the remaining variables. This also means that the reader should be told what type of regression model(s) has/have been used (e.g. step, enter) and what type of data each variable represent. Regarding the presentation quality, Table 1 states that education INCREASE the vulnerability whereas the text tells the opposite (DECREASE). More important, the variable Population density turns into Population sparsity in section 4.1 and 4.2 (also Table 2 and Figure 1). If not a typing error, this has to be explaned.

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