

# ***Interactive comment on “Assessing the impact of Syrian refugees on earthquake casualty estimations in southeast Turkey” by Bradley Wilson and Thomas Paradise***

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Dear Reviewer,

Thank you for the feedback, we appreciate the comments on our manuscript.

The accuracy of migration data is a valid concern, and we have been actively seeking improvements. At this time however, we feel that the statistics we used are the best assumptions for refugee populations. They are reported as part of the Turkish Temporary Protection Regulations legal framework, and are consistent with refugee statistics reported by the U.S. Humanitarian Information Unit, the United Nations High Commissioner for Refugees, and other international agencies. Upon review, our discussion of

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these statistics was vaguer than we intended and we will adjust these sections accordingly.

We included a discussion on the benefits, drawbacks, and methodology of our population model to facilitate an ongoing discussion in the scientific literature regarding uncertainties that do exist. As mentioned in the manuscript, most census based population models, even those disaggregated like GPWv4, do not include refugee populations from the Syrian conflict. Accordingly, we believe that our population model is more reflective of the situation on the ground than an unadjusted model. If an alternative approach, population model, or data source(s) are available, we would appreciate being pointed to specific publications or datasets. However, we have not come across such information in our review of related literature.

The critique on building classifications between refugees and local hosts is an important one, and something we would like to be able incorporate, as mentioned in the manuscript. However, we are unaware of any data that speaks in detail on the housing conditions of refugees in southern Turkey. As such, we selected an equivalent distribution to minimize our own speculation on the conditions and ensure our estimates are conservative. We do not intend to suggest that the situations of the two groups are equivalent, and will clarify our wording to articulate that death tolls could be higher in different housing conditions.

We also agree that there are inherent uncertainties in our numbers, as with any scenario-based loss estimations. The goal of the paper was to not to provide perfectly accurate death tolls, but to show that failing to include refugee populations in the calculations results in noticeable underestimations. This was the motivation behind concluding that a province-level severity adjustment may be a sufficient starting point. We will adjust our discussion to further emphasize the specific scope of our conclusions.

We appreciate the technical comments, and will revisit each of them in the manuscript.

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We agree the urbanization statement was phrased awkwardly and will adjust it to reflect the original intent: high rates of urbanization have contributed to poor code enforcement. We have used the term casualty in the same context it is used in the literature outlining the semi-empirical approach within the USGS-PAGER system, the methodological basis for our estimations. However, we will review the manuscript and ensure its usage is consistent, along with other wording errors.

Best Regards, Bradley Wilson

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