

Earth Syst. Sci. Data Discuss., author comment AC2  
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## Reply on RC2

Tingting Wang and Fubao Sun

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Author comment on "Spatially explicit global gross cell product (GCP) data set consistent with the Shared Socioeconomic Pathways" by Tingting Wang and Fubao Sun, Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2021-10-AC2>, 2021

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The authors are really grateful for all the helpful and constructive comments. We feel embarrassed about the mistakes we made, and take each comment seriously. Each comment has been carefully addressed in the revised version.

We first correct the mistake of using GDP in current PPP USD from World Bank in GDP disaggregation in 2005. National GDP from Geiger et al. (2017) and GRP (394 OECD large (TL2) regions from 36 OECD countries, plus state and county values in USA and China after rescaling from current PPP USD to 2005 PPP USD) were obtained and used in GDP disaggregation.

The improved methodology of LitPop approach (Eberenz et al., 2020) has been adopted and evaluated in GDP disaggregation. A comprehensive description of method is provided in section 3.3, and a rigorous assessment of disaggregation skill, uncertainties is in section 3.4. The advantage has been elaborated in the manuscript and limitations are discussed in section 6.

The original section of describing GCP data set developed by Murakami and Yamagata (2019) was removed since it is not been used before and in the new version of GCP.

Detailed point to point response is presented in supplement file.

Please also note the supplement to this comment:

<https://essd.copernicus.org/preprints/essd-2021-10/essd-2021-10-AC2-supplement.pdf>