Subject: Nightlights composite
Posted by DHS user on Thu, 20 Jul 2023 14:35:58 GMT
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I'm writing a paper on the relationship between women's property and women's health, based on DHS 2015. I'd like to control for nightlights luminosity (a proxy for economic development), but I'm not sure what the values provided by DHS mean : in the original database (DMSP OLS), they correspond to the number of illuminated pixels in a 1km square (0-63). How are the data aggregated by DHS to obtain a cluster-level value? And how should the values of the nightlight composite variable be interpreted? Is it the average number of illuminated pixels in the cluster for a given year? I'm a bit uncertain, as the values found for the Indian state of Meghalaya are very low (see graph and descriptive stat below...).

Subject: Re: Nightlights composite
Posted by DHS user on Thu, 20 Jul 2023 14:42:21 GMT
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Following is a response from Senior Geospatial Data Specialist, Rose Donohue:

For the geospatial covariate dataset, which include nightlights, you can find the manual with documentation here: https://spatialdata.dhsprogram.com/references/DHS_Covariates _Extract_Data_Description_2.pdf.

This documentation corresponds with the version of the covariates produced for NFHS-4. There is a more recent version of the manual, but this newer version of the covariates has not been run for the older surveys, including the NFHS-4.

In the manual, you'll see on page 31 information on the nightlights dataset we use. We don't use the DMSP data, we use the VIIRS data, so this might explain the difference you're seeing. It looks like the NOAA site we originally got the dataset from no longer hosts this data, but it's been moved to the Colorado School of Mines (VIIRS Nighttime Light (mines.edu)): https://eogdata.mines.edu/products/vnl/

You can also find information in the manual on how we obtain the cluster-level values on pages 4-5. In short, for these extractions, we created a circular buffer around each cluster (2 km for urban clusters and 10km for rural clusters to account for displacement). Any raster cells with centroids falling within these buffers are used in the raster extraction, and for nightlights we calculated the mean value of these cells using the zonal statistics algorithm.