Information on "The Unintended Impact of Colombia's Covid-19 Lockdown on Forest Fires" (ERE 2020) Effect Sizes

Our analysis compares 2020 fire hotspots detection by the Visible and Infrared Imager/Radiometer Suite (VIIRS) to historical fire rates detected by the same instrument between 2012-2019. We make use of the augmented synthetic control method (Ben-Michael et al., 2018) as a tool to construct a synthetic counterfactual for fire trends observed in 2020 in the whole of Colombia. The method utilises a ridge regression in order to construct a convex combination of prior years' outcomes which reproduces the outcomes observed for 2020 up to the introduction of border closures with Venezuela and subsequent mobility restrictions and lockdown due to Covid-19.

We measure an anomalous increase in fire rates, which we impute to increased illegal clearing in the absence of forest monitoring and enforcement of deforestation prevention activities following the lockdown. A possible confounding factor may be retraced in sudden climate anomalies coinciding exactly with the imposition of mobility restrictions; however, we do not observe said anomalies in 2020 climate trends, nor we are aware of anecdotal episodes which could have influenced the observed increase in fires.

Results are as follows:

Cumulative number of 2020 fire observations: 125'707 as of the 28th of May.
Augmented synth 2020 fire observations: 92'807 as of the 28th of May.
Net effect: +32'900 fire detections (+35.45%)
95% Confidence interval: [+13'019, +52'781] (+14.02%, +56.87%)
Number of observations: 1341 (149 days x 9 years)
Number of regressors used by augmented synth: 5 (MODIS fire observations + 4 lags of the dependent variable).