The CSVV file describes the shape of the interpolation/adaptation surface and all coefficients to generate a projection outcome. All projections require a CSVV file.

**Format Specification**

The CSVV contains the following sections, in order:

1. A [metacsv](https://github.com/ClimateImpactLab/metacsv) header with the following entries:
   * Oneline: a short description of the particular assumptions embodied.  
      E.g., oneline: Violent crime without precip. controls
   * Version: a canonical version code, to be included in the result files.  
      E.g., version: CONFLICT-VIOLENT-NOPRECIP.20160831
   * Dependencies: The versions or filenames of all inputs to the script that produced this CSVV.  
      E.g., dependencies: interpersonal\_violent\_master.csv
   * Description: Any information is fine, but at a minimum include the name of the script which produced this CSVV.  
      E.g., description: Generated by violent\_crime.do; contains stage 2 fit using the SUR method.
   * CSVV-version: For the current version of CSVVs, specify here “girdin-2017-01-10”.  
      E.g, csvv-version: girdin-2017-01-10
   * Variables: A line entry for each predictor variable, covariate, and the outcome, including units. Use cross-sector agreed-upon, canonical variable names whenever possible (see canonical variables list below).  
      E.g., variables:  
      tas: Daily average temperature [C]  
      climtas: Yearly average temperature [C]  
      loggdppc: GDP per capita [log USD2000]  
      logpopop: pop-wtd pop density [log ppl/km^2]  
      outcome: Violent crimes [crime/ppl]
2. The number of observations used in the estimation, as  
   observations  
   [number of observations]
3. The names of predictor variables, with an entry for each value in gamma. Typically the same predictor variable will be repeated multiple times here.  
   prednames  
   [predictor for gamma 1],[predictor for gamma 2], ...
4. The names of interacted covariate variables, with an entry for each value in gamma. Include the dummy covariate ‘1’ for the uninteracted terms.  
   covarnames  
   [covariate for gamma 1],[covariate for gamma 2], ...
5. The gamma coefficients, with as many entries as the prednames and covarnames rows above (described as #gamma below). The format is  
   gamma  
   [#gamma comma-delimited values]
6. The covariance matrix for the gamma coefficients, as #gamma rows of #gamma values. The format is  
   gammavcv  
   [#gamma comma-delimited values]  
   [#gamma comma-delimited values]  
   …
7. The covariance matrix of the residuals. The format is  
   residvcv  
   [K comma-delimited values]  
   [K comma-delimited values]  
   …  
   For a single-stage regression, include here the variance of the residuals (a single number). In Stata, this can be calculated as N \* (RMSE^2) / (N - P), where N is the number of observations and P is the number of parameters (betas, gammas, fixed effects, and controls).

Canonical Variables:

Below is a live list of canonical variable names to be used in the files

* + 1: No interaction (does not need to be included in metacsv variables list)
  + tas, tasmax, tasmin: in °C (C)
  + prm: total precipitation in meters (m/year)
  + climtas, logpopop, loggdppc: as normal
  + DayNumber-[lower]-[upper]: binned tas, with values like bintas-3-8 and bintas--inf--17

An example CSVV file is shown below:

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oneline: Violent crime without precip. controls

version: CONFLICT-VIOLENT-NOPRECIP.20160831

dependencies: interpersonal\_violent\_master.csv

description: Generated by violent\_crime.do; contains stage 2 fit using the SUR method.

csvv-version: girdin-2017-01-10

variables:  
 tas: Daily average temperature [C]  
 climtas: Yearly average temperature [C]  
 loggdppc: GDP per capita [log USD2000]  
 logpopop: pop-wtd pop density [log ppl/km^2]  
 outcome: Violent crimes [crime/ppl]

...

observations

165

prednames

tas,tas,tas,tas

covarnames

1,climtas,logpopop,loggdppc

gamma

0.0164696356700432,-8.89709735801015e-07,-0.000554879778433052,0.00102394972370296

gammavcv

1.80965714848814e-05,-4.39752230027157e-10,-1.21862004397995e-07,-7.20860670243013e-07

-4.25361425336379e-07,-1.88744484825226e-12,-6.19352064853970e-09,8.0019153062177e-09

-4.39752230027157e-10,1.32244166740551e-13,1.94402052328441e-11,2.18818588530398e-11

-1.21862004397995e-07,1.94402052328441e-11,1.57650913027939e-07,-1.30200787315058e-07

-7.20860670243013e-07,2.18818588530398e-11,-1.30200787315058e-07,1.95283739693075e-07

residvcv

13.4623149763139