COUNTRY EXPOSURE MODEL

Review main statistic of a exposure model and create summaries for a given Country.

```
/home/risk/venvs/py38w/lib/python3.8/site-packages/geopandas/_compat.py:111: UserWarning: The S
hapely GEOS version (3.9.1-CAPI-1.14.2) is incompatible with the GEOS version PyGEOS was compil
ed with (3.10.1-CAPI-1.16.0). Conversions between both will be slow.
  warnings.warn(
```

```python
# Parameters
country = "Tajikistan"
```

```
Exposure files:
  Exposure_Com_Tajikistan.csv
  Exposure_Ind_Tajikistan.csv
  Exposure_Res_Tajikistan.csv
```

Sanity checks and formats

```
Tajikistan
  Exposure/Exposure/Exposure_Com_Tajikistan.csv
  Exposure/Exposure/Exposure_Ind_Tajikistan.csv
  Exposure/Exposure/Exposure_Res_Tajikistan.csv
  Occupants / Dwellings = 6.3
  Reference avg household size (2019) = 6.0
  Population (exposure / UN_2021) = 0.98
  Exposure models  OK
```

Exposure at National level

Summary by occupancy type

OCCUPANCY	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
Res	9.5M	857.8K	$77,774.2M	96.32%	94.25%
Ind	0.0M	9.9K	$1,505.5M	1.12%	1.82%
Com	0.0M	22.8K	$3,237.8M	2.56%	3.92%

Other metrics to consider

OCCUPANCY	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
Total	133,197.0K	$70,042.2M	150	$620
Res	127,257.1K	$66,767.4M	148	$611
Ind	2,048.7K	$928.7M	206	$735
Com	3,891.2K	$2,346.1M	171	$832

Exposure summary at Admin level 1

NAME_1	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
Khatlon Region	$26,239.5M	294.1K	3,425.5K	31.80%	33.02%	36.03%
Sughd Region	$25,187.5M	273.4K	2,753.1K	30.52%	30.70%	28.96%
Districts of Republican Subordination	$18,066.0M	209.9K	2,215.5K	21.89%	23.57%	23.31%
Dushanbe	$10,433.9M	85.5K	880.8K	12.64%	9.60%	9.27%
Gorno-Badakhshan Autonomous Region	$2,590.5M	27.7K	231.4K	3.14%	3.11%	2.43%

Exposure by simplified taxonomy

Adding `MACRO_TAXO` column

MACRO_TAXO	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
RC	$32,629.3M	95.7K	3,321.0K	39.54%	10.74%	34.93%
ADO/E	$14,342.3M	354.9K	2,220.2K	17.38%	39.86%	23.36%
MUR	$11,145.6M	176.2K	1,347.8K	13.51%	19.78%	14.18%
MCF	$7,821.7M	43.4K	872.4K	9.48%	4.87%	9.18%
MIX	$6,528.9M	110.1K	794.3K	7.91%	12.36%	8.36%
W	$4,563.2M	65.6K	475.3K	5.53%	7.36%	5.00%
S	$3,843.2M	13.3K	285.2K	4.66%	1.50%	3.00%
OT	$1,643.4M	31.4K	190.1K	1.99%	3.53%	2.00%

Exposure by taxonomy

Showing only taxonomies that represent 90% of the total `COST_USD`

MACRO_TAXO	TAXONOMY	COST_USD	BUILDINGS	COST_USD_%	BUILDINGS_%
MUR	MUR+CLBRS/LWAL+CDL/HBET:1-2/RES	$9,444.6M	159,059	12.85%	19.50%
RC	CR+CIP/LFINF+CDL/HBET:1-3/RES	$8,703.0M	70,547	11.84%	8.65%
MCF	MCF/LWAL+CDL/HBET:1-4/RES	$7,630.1M	42,363	10.38%	5.19%
RC	CR+CIP/LWAL+CDL/HBET:4-7/RES	$6,962.4M	9,329	9.47%	1.14%
ADO/E	EU+ETR/LWAL+CDN/H:1/RES	$6,910.5M	174,215	9.40%	21.35%
	MUR+ADO/LWAL+CDN/H:1/RES	$6,910.5M	174,215	9.40%	21.35%
MIX	MIX(MUR+W)/LWAL+CDL/HBET:1-2/RES	$6,141.2M	106,329	8.36%	13.03%
RC	CR+PC/LPB+CDL/HBET:5-9/RES	$4,601.6M	2,618	6.26%	0.32%
	CR+PC/LWAL+CDL/HBET:5-9/RES	$4,601.6M	2,618	6.26%	0.32%
W	W/LWAL+CDL/HBET:1-2/RES	$4,175.6M	61,785	5.68%	7.57%
S	S/LFM+CDL/HBET:1-10/RES	$3,474.1M	11,228	4.73%	1.38%
RC	CR+PC/LWAL+CDL/HBET:9-12/RES	$1,972.1M	772	2.68%	0.09%
	CR+PC/LPB+CDL/HBET:9-12/RES	$1,972.1M	772	2.68%	0.09%