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 = "Gambia"
```

```
Exposure files:
  Exposure_Com_Gambia.csv
  Exposure_Ind_Gambia.csv
  Exposure_Res_Gambia.csv
```

Sanity checks and formats

```
Gambia
  Exposure/Exposure/Exposure_Com_Gambia.csv
  Exposure/Exposure/Exposure_Ind_Gambia.csv
  Exposure/Exposure/Exposure_Res_Gambia.csv
  Occupants / Dwellings = 8.2
  Reference avg household size (2019) = 8.0
  Population (exposure / UN_2021) = 0.96
  Exposure models  OK
```

Exposure at National level

Summary by occupancy type

OCCUPANCY	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
Res	2,383.9K	274,191	$5,966.1M	93.21%	78.51%
Ind	0.0K	4,019	$417.8M	1.37%	5.50%
Com	0.0K	15,967	$1,215.6M	5.43%	16.00%

Other metrics to consider

OCCUPANCY	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
Total	26,930.3K	$6,261.2M	92	$282
Res	22,769.2K	$5,083.6M	83	$262
Ind	1,141.7K	$272.7M	284	$366
Com	3,019.4K	$904.9M	189	$403

Exposure summary at Admin level 1

NAME_1	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
Brikama	$3,431.9M	132,644	1,074.9K	45.16%	45.09%	45.09%
Kanifing	$1,287.9M	49,800	403.6K	16.95%	16.93%	16.93%
Basse	$920.2M	35,608	288.5K	12.11%	12.10%	12.10%
Kerewan	$831.3M	32,179	260.7K	10.94%	10.94%	10.94%
Janjanbureh	$554.6M	21,514	174.5K	7.30%	7.31%	7.32%
Mansa Konko	$285.5M	11,108	90.0K	3.76%	3.78%	3.78%
Kuntaur	$263.6M	10,263	83.2K	3.47%	3.49%	3.49%
Banjul	$24.5M	1,061	8.5K	0.32%	0.36%	0.36%

Exposure by simplified taxonomy

Adding `MACRO_TAXO` column

MACRO_TAXO	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
MUR	$3,615.2M	136,026	1,054.7K	47.57%	46.24%	44.24%
ADO/E	$1,578.4M	63,461	516.7K	20.77%	21.57%	21.67%
W	$867.5M	60,158	524.2K	11.42%	20.45%	21.99%
RC	$750.4M	11,786	115.8K	9.87%	4.01%	4.86%
MCF	$612.5M	14,712	115.8K	8.06%	5.00%	4.86%
S	$134.3M	999	0.0K	1.77%	0.34%	0.00%
OT	$41.1M	7,035	56.8K	0.54%	2.39%	2.38%

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+CB/LWAL+CDN/H:2/RES	$814.6M	30,928	11.93%	11.05%
	MUR+CL/LWAL+CDN/H:2/RES	$814.6M	30,928	11.93%	11.05%
ADO/E	MUR+ADO/LWAL+CDN/H:2/RES	$653.9M	27,589	9.58%	9.85%
MUR	MUR+CB/LWAL+CDN/H:1/RES	$494.7M	31,723	7.24%	11.33%
	MUR+CL/LWAL+CDN/H:1/RES	$494.7M	31,723	7.24%	11.33%
W	W+WWD/LWAL+CDN/H:1/RES	$487.6M	41,695	7.14%	14.89%
ADO/E	MUR+ADO/LWAL+CDN/H:1/RES	$397.1M	28,293	5.82%	10.11%
W	W+WWD/LWAL+CDN/H:2/RES	$344.2M	17,422	5.04%	6.22%
MCF	MCF/LWAL+CDL/H:2/RES	$262.7M	6,651	3.85%	2.38%
RC	CR/LFINF+CDL/H:3/RES	$236.2M	4,133	3.46%	1.48%
ADO/E	MUR+ADO/LWAL+CDN/H:2/COM	$208.0M	2,370	3.05%	0.85%
	MUR+ADO/LWAL+CDN/H:1/COM	$202.6M	4,743	2.97%	1.69%
RC	CR/LFINF+CDL/H:2/RES	$192.3M	5,172	2.82%	1.85%
MCF	MCF/LWAL+CDL/H:1/RES	$159.5M	6,821	2.34%	2.44%
MUR	MUR+CB/LWAL+CDN/H:2/COM	$131.9M	1,205	1.93%	0.43%
	MUR+CL/LWAL+CDN/H:2/COM	$131.9M	1,205	1.93%	0.43%
	MUR+CB/LWAL+CDN/H:1/COM	$128.5M	2,407	1.88%	0.86%
	MUR+CL/LWAL+CDN/H:1/COM	$128.5M	2,407	1.88%	0.86%
	MUR+CB/LWAL+CDN/HBET:3-6/RES	$107.6M	414	1.58%	0.15%
	MUR+CL/LWAL+CDN/HBET:3-6/RES	$107.6M	414	1.58%	0.15%
RC	CR/LFINF+CDL/HBET:4-7/RES	$105.4M	190	1.54%	0.07%
ADO/E	MUR+ADO/LWAL+CDN/HBET:3-6/RES	$86.1M	370	1.26%	0.13%
MCF	MCF/LWAL+CDL/HBET:3-6/RES	$73.1M	188	1.07%	0.07%
MUR	MUR+CB/LWAL+CDN/H:1/IND	$64.7M	967	0.95%	0.35%