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 = "Antigua_and_Barbuda"
```

```
Exposure files:
  Exposure_Com_Antigua_and_Barbuda.csv
  Exposure_Ind_Antigua_and_Barbuda.csv
  Exposure_Res_Antigua_and_Barbuda.csv
```

Sanity checks and formats

```
Antigua_and_Barbuda
  Exposure/Exposure/Exposure_Com_Antigua_and_Barbuda.csv
  Exposure/Exposure/Exposure_Ind_Antigua_and_Barbuda.csv
  Exposure/Exposure/Exposure_Res_Antigua_and_Barbuda.csv
  Occupants / Dwellings = 3.6
  No refence household size data available
  Population (exposure / UN_2021) = 1.02
  Exposure models  OK
```

Exposure at National level

Summary by occupancy type

OCCUPANCY	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
Res	100.8K	23,943	$1,635.2M	93.15%	74.67%
Ind	0.0K	340	$109.4M	1.32%	5.00%
Com	0.0K	1,421	$445.3M	5.53%	20.34%

Other metrics to consider

OCCUPANCY	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
Total	7,954.3K	$1,379.0M	309	$275
Res	7,392.7K	$1,049.7M	309	$221
Ind	142.0K	$54.9M	418	$770
Com	419.5K	$274.4M	295	$1,062

Exposure summary at Admin level 1

NAME_1	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
Saint John	$535.1M	6,488	25,664	24.43%	25.24%	25.46%
Saint Mary	$490.8M	5,707	22,427	22.41%	22.20%	22.25%
Saint Paul	$338.0M	3,966	15,740	15.44%	15.43%	15.62%
Saint Philip	$337.7M	3,735	14,533	15.42%	14.53%	14.42%
Saint Peter	$247.5M	2,985	11,757	11.30%	11.61%	11.67%
Saint George	$197.9M	2,253	8,885	9.04%	8.77%	8.82%
Barbuda	$43.0M	570	1,782	1.96%	2.22%	1.77%

Exposure by simplified taxonomy

```
Adding `MACRO_TAXO` column
```

MACRO_TAXO	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
W	$1,134.8M	15,201	45.4K	51.82%	59.14%	45.00%
RC	$662.0M	6,063	22.2K	30.23%	23.59%	22.00%
OT	$243.4M	3,810	33.3K	11.11%	14.82%	33.00%
S	$130.7M	528	0.0K	5.97%	2.05%	0.00%
MCF	$19.1M	102	0.0K	0.87%	0.40%	0.00%

Exposure by taxonomy

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

MACRO_TAXO	TAXONOMY	COST_USD	BUILDINGS	COST_USD_%	BUILDINGS_%
W	W+WLI/LWAL+CDL+DUL/HEX:2/RES	$914.0M	14,306	46.81%	58.23%
RC	CR/LFINF+CDL+DUL/HEX:2/RES	$457.0M	5,501	23.40%	22.39%
OT	UNK/UNK+DNO/HEX:1/RES	$243.4M	3,810	12.46%	15.51%
W	W+WLI/LWAL+CDM+DUM/HEX:2/COM	$200.0M	569	10.24%	2.32%
RC	CR/LFINF+CDM+DUM/HEX:2/COM	$73.3M	14	3.76%	0.06%
RC	CR/LFINF+CDL+DUL/HEX:1/COM	$65.0M	370	3.33%	1.51%