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(
```

```
# Parameters
country = "Jamaica"
```

```
Exposure files:
  Exposure_Com_Jamaica.csv
  Exposure_Ind_Jamaica.csv
  Exposure_Res_Jamaica.csv
```

Sanity checks and formats

```
  Jamaica
   Exposure/Exposure/Exposure_Com_Jamaica.csv
   Exposure/Exposure/Exposure_Ind_Jamaica.csv
   Exposure/Exposure/Exposure_Res_Jamaica.csv
   Occupants / Dwellings = 2.9
   Reference avg household size (2019) = 3.08
   Population (exposure / UN_2021) = 0.91
  Exposure models  OK
```

Exposure at National level

Summary by occupancy type

OCCUPANCY	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
Res	2,697.1K	815.0K	$61.7B	92.02%	76.26%
Ind	0.0K	13.8K	$5.9B	1.56%	7.35%
Com	0.0K	56.8K	$13.3B	6.42%	16.38%

Other metrics to consider

OCCUPANCY	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
Total	103.0M	$55,019.3M	116	$786
Res	80.2M	$43,892.5M	98	$769
Ind	9.1M	$3,019.9M	659	$652
Com	13.6M	$8,106.9M	240	$973

Exposure summary at Admin level 1

NAME_1	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
Saint Andrew	$19,180.6M	186.9K	573.1K	23.70%	21.10%	21.25%
Saint Catherine	$15,982.2M	159.1K	516.2K	19.75%	17.96%	19.14%
Clarendon	$7,297.6M	79.0K	245.1K	9.02%	8.92%	9.09%
Manchester	$5,957.5M	61.4K	189.8K	7.36%	6.93%	7.04%
Saint James	$5,370.3M	59.7K	183.7K	6.64%	6.75%	6.81%
Saint Ann	$4,990.8M	55.0K	172.3K	6.17%	6.21%	6.39%
Saint Elizabeth	$4,528.5M	51.3K	150.2K	5.60%	5.79%	5.57%
Westmoreland	$3,340.5M	52.9K	144.1K	4.13%	5.97%	5.34%
Saint Mary	$2,912.7M	38.2K	113.6K	3.60%	4.32%	4.21%
Kingston	$2,700.4M	29.2K	88.8K	3.34%	3.30%	3.29%
Saint Thomas	$2,659.0M	33.2K	93.9K	3.29%	3.74%	3.48%
Portland	$2,261.4M	28.7K	81.7K	2.79%	3.24%	3.03%
Trelawny	$2,078.0M	26.1K	75.2K	2.57%	2.95%	2.79%
Hanover	$1,657.4M	25.0K	69.5K	2.05%	2.82%	2.58%

Exposure by simplified taxonomy

```
Adding `MACRO_TAXO` column
```

MACRO_TAXO	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
MCF	$33,695.6M	183.7K	533.2K	41.64%	20.75%	19.77%
MR	$21,440.7M	154.2K	555.1K	26.50%	17.41%	20.58%
W	$8,375.2M	201.9K	563.7K	10.35%	22.80%	20.90%
MUR	$7,688.1M	257.3K	790.6K	9.50%	29.05%	29.31%
RC	$6,439.8M	64.4K	218.7K	7.96%	7.27%	8.11%
S	$2,996.9M	12.5K	0.0K	3.70%	1.42%	0.00%
OT	$280.6M	11.6K	35.7K	0.35%	1.31%	1.32%

Exposure by taxonomy

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

MACRO_TAXO	TAXONOMY	COST_USD	BUILDINGS	COST_USD_%	BUILDINGS_%
MR	MR/LWAL+CDL+DUL/HEX:2/RES	$13,867.8M	65,088	19.22%	7.98%
MCF	MCF/LWAL+CDL+DUL/HEX:2/RES	$12,876.2M	60,434	17.84%	7.41%
	MCF/LWAL+CDL+DUL/HEX:1/RES	$8,826.9M	74,572	12.23%	9.14%
MR	MR/LWAL+CDL+DUL/HEX:1/RES	$4,509.9M	76,202	6.25%	9.34%
MUR	MUR/LWAL+DNO/HEX:2/RES	$4,420.3M	122,215	6.13%	14.99%
MCF	MCF/LWAL+CDL+DUL/HEX:2/COM	$4,237.4M	21,319	5.87%	2.61%
MUR	MUR/LWAL+DNO/HEX:1/RES	$3,208.2M	133,054	4.45%	16.32%
MCF	MCF/LWAL+CDL+DUL/HEX:3/RES	$3,063.0M	12,874	4.24%	1.58%
MR	MR/LWAL+CDL+DUL/HEX:3/RES	$3,063.0M	12,874	4.24%	1.58%
W	W+WLI/LWAL+CDL+DUL/HEX:2/COM	$2,347.6M	8,543	3.25%	1.05%
MCF	MCF/LWAL+CDL+DUL/HEX:3/COM	$2,147.3M	5,326	2.98%	0.65%
	MCF/LWAL+CDL+DUL/HEX:1/IND	$1,782.1M	5,107	2.47%	0.63%
W	W+WS/LPB+CDL+DUL/HEX:1/RES	$1,451.3M	60,190	2.01%	7.38%
	W+WLI/LWAL+CDL+DUL/HEX:1/RES	$1,373.8M	56,975	1.90%	6.99%
	W+WLI/LWAL+CDL+DUL/HEX:2/RES	$1,338.0M	36,994	1.85%	4.54%
RC	CR/LFM+CDL+DUL/HEX:3/COM	$1,253.9M	3,031	1.74%	0.37%
W	W+WLI/LWAL+CDL+DUL/HEX:2/SOS/RES	$1,212.4M	33,520	1.68%	4.11%
RC	CR/LFM+CDL+DUL/HEX:2/RES	$1,178.4M	27,150	1.63%	3.33%