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 Sh
apely GEOS version (3.9.1-CAPI-1.14.2) is incompatible with the GEOS version PyGEOS was compiled
with (3.10.1-CAPI-1.16.0). Conversions between both will be slow.
  warnings.warn(
```

```python
# Parameters
country = "South_Korea"
```

```
Exposure files:
  Exposure_Res_South_Korea.csv
```

Sanity checks and formats

Exposure at National level

Summary by occupancy type

OCCUPANCY	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
Res	50.9M	2,311.6K	$1,147.4B	100.00%	100.00%

Other metrics to consider

OCCUPANCY	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
Total	1,178.7M	$956.2B	510	$973
Res	1,178.7M	$956.2B	510	$973

Exposure summary at Admin level 1

NAME_1	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
Gyeonggi-do	$289.1B	398.0K	12,794.8K	25.20%	17.22%	25.12%
Seoul	$245.1B	344.8K	11,322.5K	21.36%	14.92%	22.23%
Busan	$72.6B	86.6K	3,306.3K	6.32%	3.75%	6.49%
Gyeongsangbuk-do	$72.1B	203.0K	2,624.9K	6.28%	8.78%	5.15%
Daegu	$64.0B	123.6K	2,743.5K	5.57%	5.35%	5.39%
Gyeongsangnam-do	$57.0B	204.3K	2,476.8K	4.97%	8.84%	4.86%
Chungcheongnam-do	$50.5B	148.2K	2,116.7K	4.40%	6.41%	4.16%
Jeollabuk-do	$45.8B	130.9K	1,749.5K	3.99%	5.66%	3.44%
Chungcheongbuk-do	$39.6B	117.9K	1,693.1K	3.45%	5.10%	3.32%
Daejeon	$39.1B	62.7K	1,733.5K	3.41%	2.71%	3.40%
Gangwon-do	$38.5B	131.9K	1,603.6K	3.36%	5.71%	3.15%
Gwangju	$37.3B	56.4K	1,655.7K	3.25%	2.44%	3.25%
Ulsan	$30.4B	52.4K	1,390.6K	2.65%	2.27%	2.73%
Incheon	$27.2B	36.1K	1,073.2K	2.37%	1.56%	2.11%
Jeollanam-do	$17.7B	152.0K	1,684.0K	1.54%	6.58%	3.31%
Jeju	$15.2B	52.9K	586.2K	1.32%	2.29%	1.15%
Sejong	$6.4B	9.9K	369.6K	0.56%	0.43%	0.73%

Exposure by simplified taxonomy

```
Adding `MACRO_TAXO` column
```

MACRO_TAXO	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
Others	$833,218.9M	670,529	39,428,810	72.62%	29.01%	77.43%
M	$265,354.2M	1,199,802	10,007,902	23.13%	51.90%	19.65%
S	$31,391.1M	234,145	731,967	2.74%	10.13%	1.44%
MCF	$9,578.6M	94,674	384,339	0.83%	4.10%	0.75%
W	$7,870.6M	112,013	370,334	0.69%	4.85%	0.73%
ADO/E	$20.7M	438	1,122	0.00%	0.02%	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_%
	CR/LWAL+DLO/HBET:20,11/RES	$424.0B	68.0K	41.69%	3.89%
Others	CR/LWAL+DLO/HBET:30,21/RES	$126.9B	14.5K	12.48%	0.83%
	CR/LFM+DLO/LFM+DLO/HBET:5,3/RMT7/RES	$107.3B	327.8K	10.55%	18.74%
	M99+CLBRS/LWAL+DLO/HBET:4,1/RMT7/RES	$69.4B	101.5K	6.82%	5.81%
M	M99+CLBRS/LWAL+DLO/HEX:2/RMT7/RES	$68.6B	475.2K	6.75%	27.17%
	M99+CLBRS/LWAL+DLO/HBET:10,5/RMT7/RES	$68.5B	65.2K	6.74%	3.73%
Others	CR/LFM+DLO/LFM+DLO/HBET:2,1/RMT7/RES	$42.1B	191.3K	4.14%	10.94%
	CR/LFM+DLO/HBET:10,6/RES	$40.7B	16.5K	4.00%	0.94%
M	M99+CLBRS/LWAL+DLO/HEX:1/RMT7/RES	$37.2B	469.7K	3.65%	26.85%
Others	CR/LFM+DLO/HBET:5,1/RES	$32.3B	19.6K	3.18%	1.12%