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 = "Philippines"
```

```
Exposure files:
  Exposure_Com_Philippines.csv
  Exposure_Ind_Philippines.csv
  Exposure_Res_Philippines.csv
```

Sanity checks and formats

Philippines
  Exposure/Exposure/Exposure_Com_Philippines.csv
  Exposure/Exposure/Exposure_Ind_Philippines.csv
  Exposure/Exposure/Exposure_Res_Philippines.csv
  Occupants / Dwellings = 4.4
  Reference avg household size (2019) = 4.22
  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	100.9M	22,515.3K	$265.8B	97.28%	89.70%
Ind	0.0M	119.3K	$7.4B	0.52%	2.50%
Com	0.0M	510.2K	$23.1B	2.20%	7.80%

Other metrics to consider

OCCUPANCY	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
Total	1,172.1M	$221,049.9M	51	$253
Res	1,122.6M	$200,999.1M	50	$237
Ind	10.9M	$4,405.8M	91	$683
Com	38.6M	$15,645.0M	76	$598

Exposure summary at Admin level 1

NAME_1	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
NATIONAL CAPITAL REGION (NCR)	$50.5B	2,982.9K	12,877.3K	17.05%	12.89%	12.76%
REGION IV-A (CALABARZON)	$46.3B	3,372.7K	14,414.8K	15.62%	14.57%	14.28%
REGION III (CENTRAL LUZON)	$35.7B	2,573.0K	11,156.3K	12.04%	11.12%	11.05%
REGION VII (CENTRAL VISAYAS)	$16.8B	1,415.2K	6,042.9K	5.68%	6.11%	5.99%
REGION I (ILOCOS REGION)	$15.2B	1,141.3K	5,026.1K	5.13%	4.93%	4.98%
REGION V (BICOL REGION)	$14.2B	1,227.2K	5,797.0K	4.79%	5.30%	5.74%
REGION XI (DAVAO REGION)	$13.9B	1,224.3K	4,893.3K	4.69%	5.29%	4.85%
REGION XII (SOCCSKSARGEN)	$12.2B	1,103.3K	4,545.3K	4.11%	4.77%	4.50%
REGION X (NORTHERN MINDANAO)	$12.0B	1,052.3K	4,689.3K	4.06%	4.55%	4.65%
REGION VI (WESTERN VISAYAS)	$11.6B	1,026.2K	4,477.2K	3.90%	4.43%	4.44%
NEGROS ISLAND REGION (NIR)	$11.1B	1,013.8K	4,414.1K	3.76%	4.38%	4.37%
REGION VIII (EASTERN VISAYAS)	$11.0B	989.2K	4,440.2K	3.71%	4.27%	4.40%
REGION II (CAGAYAN VALLEY)	$10.4B	805.4K	3,451.4K	3.52%	3.48%	3.42%
REGION IX (ZAMBOANGA PENINSULA)	$9.1B	852.0K	3,629.8K	3.08%	3.68%	3.60%
REGION IV-B (MIMAROPA)	$8.5B	751.5K	2,963.4K	2.88%	3.25%	2.94%
REGION XIII (Caraga)	$6.8B	622.0K	2,596.7K	2.29%	2.69%	2.57%
AUTONOMOUS REGION IN MUSLIM MINDANAO (ARMM)	$5.9B	602.6K	3,781.4K	1.99%	2.60%	3.75%
CORDILLERA ADMINISTRATIVE REGION (CAR)	$5.0B	390.0K	1,722.0K	1.69%	1.68%	1.71%

Exposure by simplified taxonomy

Adding `MACRO_TAXO` column

MACRO_TAXO	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
MR	$116,390.4M	7,261,900	31,016.2K	39.28%	31.38%	30.73%
W	$69,267.3M	7,692,674	34,241.6K	23.37%	33.24%	33.93%
MCF	$38,689.5M	2,290,942	9,807.3K	13.06%	9.90%	9.72%
MIX	$32,787.0M	3,532,116	15,363.5K	11.06%	15.26%	15.22%
RC	$22,302.9M	663,411	2,960.9K	7.53%	2.87%	2.93%
MUR	$12,656.8M	1,242,503	5,208.1K	4.27%	5.37%	5.16%
OT	$4,101.7M	460,171	2,320.7K	1.38%	1.99%	2.30%
S	$147.1M	1,106	0.0K	0.05%	0.00%	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_%
MR	MR/LWAL+DUL/H:1/RES	$71,434.2M	5,357,565	26.87%	23.83%
	MR/LWAL+DUL/H:2/RES	$33,212.8M	1,660,639	12.49%	7.39%
W	W+WBB/LPB+DNO/H:1/RES	$28,753.7M	3,423,063	10.82%	15.22%
	W+WO/LN/H:1/RES	$28,710.0M	3,417,862	10.80%	15.20%
MCF	MCF/LWAL+DUL/H:1/RES	$21,526.7M	1,614,505	8.10%	7.18%
MIX	MIX(CR-W)/RES	$17,527.3M	2,086,582	6.59%	9.28%
	MIX(M-W)/RES	$11,665.3M	1,388,722	4.39%	6.18%
MCF	MCF/LWAL+DUL/H:2/RES	$10,953.6M	547,679	4.12%	2.44%
MUR	MUR/LWAL+DNO/H:2/RES	$5,869.7M	559,023	2.21%	2.49%
W	W/H:2/RES	$5,490.8M	377,676	2.07%	1.68%
RC	CR/LFINF+DUL/H:2/RES	$5,018.0M	267,629	1.89%	1.19%
MUR	MUR/LWAL+DNO/H:1/RES	$4,337.5M	619,644	1.63%	2.76%
W	W/H:1/RES	$3,665.9M	378,226	1.38%	1.68%
RC	CR/LFINF+DUL/H:1/RES	$3,445.5M	275,639	1.30%	1.23%
MR	MR/LWAL+DUL/H:2/IND2	$3,388.7M	56,479	1.27%	0.25%
	MR/LWAL+DUL/H:1/COM3	$1,778.4M	35,568	0.67%	0.16%
W	W/+DNO/HBET:1-2/COM1	$1,665.4M	66,616	0.63%	0.30%
OT	MATO/LN/HBET:1-2/EWME/RES	$1,585.6M	125,840	0.60%	0.56%
RC	CR/LFINF+DUL/H:4/RES	$1,529.6M	2,428	0.58%	0.01%
OT	UNK/H:1/RES	$1,461.3M	208,751	0.55%	0.93%
RC	CR/LFINF+DUL/H:2/COM1	$1,443.8M	15,641	0.54%	0.07%
	CR/LDUAL+DUM/HBET:6-12/RES	$1,352.3M	477	0.51%	0.00%