

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 SHapely 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(
```

```
# Parameters
country = "Cayman_Islands"
```

Exposure files:
Exposure_Com_Cayman_Islands.csv
Exposure_Ind_Cayman_Islands.csv
Exposure_Res_Cayman_Islands.csv

Sanity checks and formats

```
Cayman_Islands
Exposure/Exposure/Exposure_Com_Cayman_Islands.csv
Exposure/Exposure/Exposure_Ind_Cayman_Islands.csv
Exposure/Exposure/Exposure_Res_Cayman_Islands.csv
Occupants / Dwellings = 3.9
No refence household size data available
WARNING - Check population:
Exposure population = 56.0k
UN 2021 population = 66.0k
Population (exposure / UN_2021) = 0.85
Exposure models OK
```

Exposure at National level

Summary by occupancy type

| | OCCUPANTS | BUILDINGS | COST_USD | BUILDINGS_% | COST_USD_% |
|-----------|-----------|-----------|------------|-------------|------------|
| OCCUPANCY | | | | | |
| Res | 56.3K | 9,327 | \$3,193.7M | 88.64% | 25.35% |
| Ind | 0.0K | 231 | \$561.1M | 2.20% | 4.45% |
| Com | 0.0K | 964 | \$8,842.5M | 9.16% | 70.19% |

Other metrics to consider

| | AREA_SQM | COST_BUILDING_USD | AVG_BUILDING_AREA_SQM | AVG_COST_PER_AREA_USD |
|-----------|-----------|-------------------|-----------------------|-----------------------|
| OCCUPANCY | | | | |
| Total | 12,771.8K | \$7,839.2M | 1,214 | \$986 |
| Res | 10,521.9K | \$2,248.7M | 1,128 | \$304 |
| Ind | 552.9K | \$277.6M | 2,394 | \$1,015 |
| Com | 1,697.0K | \$5,312.9M | 1,760 | \$5,211 |

Exposure summary at Admin level 1

| | COST_USD | BUILDINGS | OCCUPANTS | COST_USD_% | BUILDINGS_% | OCCUPANTS_% |
|----------------|----------|-----------|-----------|------------|-------------|-------------|
| NAME_1 | | | | | | |
| Cayman Islands | \$12.6B | 10.5K | 56.3K | 100.00% | 100.00% | 100.00% |

Exposure by simplified taxonomy

Adding `MACRO_TAXO` column

| | COST_USD | BUILDINGS | OCCUPANTS | COST_USD_% | BUILDINGS_% | OCCUPANTS_% |
|------------|-------------|-----------|-----------|------------|-------------|-------------|
| MACRO_TAXO | | | | | | |
| RC | \$10,334.0M | 6,190 | 42,985 | 82.03% | 58.83% | 76.31% |
| OT | \$734.4M | 2,482 | 6,703 | 5.83% | 23.59% | 11.90% |
| MR | \$719.1M | 1,208 | 6,562 | 5.71% | 11.48% | 11.65% |
| S | \$551.3M | 450 | 0 | 4.38% | 4.28% | 0.00% |
| W | \$239.3M | 157 | 78 | 1.90% | 1.49% | 0.14% |
| MCF | \$19.2M | 35 | 0 | 0.15% | 0.33% | 0.00% |

Exposure by taxonomy

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

| | | COST_USD | BUILDINGS | COST_USD_% | BUILDINGS_% |
|--------------------------|----------------------------|------------|-----------|------------|-------------|
| MACRO_TAXO TAXONOMY | | | | | |
| | CR/LFINF+CDM+DUM/HEX:2/COM | \$4,552.7M | 96 | 40.17% | 1.05% |
| RC | CR/LFINF+CDM+DUM/HEX:4/COM | \$3,809.7M | 241 | 33.61% | 2.63% |
| | CR/LFINF+CDL+DUL/HEX:1/RES | \$1,518.6M | 5,132 | 13.40% | 56.03% |
| OT | UNK/UNK+DNO/HEX:1/RES | \$734.4M | 2,482 | 6.48% | 27.10% |
| MR | MR/LWAL+CDL+DUL/HEX:3/RES | \$719.1M | 1,208 | 6.34% | 13.19% |

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