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 = "New_Zealand"
```

```
Exposure files:
  Exposure_NonRes_New_Zealand.csv
  Exposure_Res_New_Zealand.csv
```

Sanity checks and formats

Exposure at National level

Summary by occupancy type

OCCUPANCY	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
Res	5.1M	1,642.5K	$935.6B	69.95%	66.19%
NonRes	0.0M	705.7K	$477.8B	30.05%	33.81%

Other metrics to consider

OCCUPANCY	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
Total	465.6M	$702.6B	198	$3,036
Res	284.9M	$478.3B	173	$3,284
NonRes	180.7M	$224.3B	256	$2,644

Exposure summary at Admin level 1

NAME_1	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
Auckland Region	$554.8B	547.0K	1,717.5K	39.25%	23.29%	33.79%
Canterbury Region	$177.4B	316.7K	646.7K	12.55%	13.49%	12.72%
Wellington Region	$131.0B	224.2K	542.0K	9.27%	9.55%	10.66%
Waikato Region	$117.8B	295.5K	493.0K	8.33%	12.59%	9.70%
Bay of Plenty Region	$74.0B	171.1K	341.2K	5.24%	7.29%	6.71%
Manawatu-Wanganui Region	$67.7B	183.6K	254.2K	4.79%	7.82%	5.00%
Otago Region	$67.2B	110.0K	244.6K	4.76%	4.69%	4.81%
Hawke's Bay Region	$51.7B	106.4K	178.5K	3.66%	4.53%	3.51%
Northland Region	$44.6B	117.9K	194.5K	3.16%	5.02%	3.83%
Taranaki Region	$34.5B	87.2K	124.7K	2.44%	3.72%	2.45%
Southland Region	$32.5B	59.6K	102.5K	2.30%	2.54%	2.02%
Tasman Region	$14.3B	28.5K	56.4K	1.01%	1.21%	1.11%
Marlborough Region	$13.6B	26.6K	50.2K	0.96%	1.13%	0.99%
Gisborne Region	$12.4B	35.6K	50.7K	0.87%	1.52%	1.00%
Nelson Region	$10.7B	18.8K	54.6K	0.76%	0.80%	1.07%
West Coast Region	$9.1B	19.6K	32.3K	0.64%	0.84%	0.64%

Exposure by simplified taxonomy

Adding `MACRO_TAXO` column

MACRO_TAXO	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
W	$1,168.5B	2,115.4K	4,141.1K	82.68%	90.08%	81.46%
RC	$140.6B	104.6K	486.9K	9.95%	4.45%	9.58%
MR	$52.6B	82.4K	377.1K	3.72%	3.51%	7.42%
S	$28.7B	8.2K	6.1K	2.03%	0.35%	0.12%
MUR	$23.0B	37.6K	72.2K	1.63%	1.60%	1.42%

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/HBET:1-2/YBET:1980-/RES	$293.0B	442,660	23.06%	19.87%
	W+WLI/LWAL/HBET:1-2/Y:1960-1979/RES	$200.7B	368,216	15.79%	16.53%
	W+WLI/LWAL/HBET:1-2/YBET:-1960//RES	$196.8B	396,022	15.49%	17.78%
	W+WLI/LWAL/HBET:1-2/YBET:1980-/NONRES	$122.3B	180,494	9.62%	8.10%
	W+WLI/LWAL/HBET:1-2/YBET:1980-/SOS/RES	$74.3B	111,231	5.85%	4.99%
	W+WLI/LWAL/HBET:1-2/YBET:-1960//NONRES	$63.8B	153,490	5.02%	6.89%
	W+WLI/LWAL/HBET:1-2/Y:1960-1979/NONRES	$58.1B	151,072	4.58%	6.78%
	W+WLI/LWAL/HBET:1-2/Y:1960-1979/SOS/RES	$49.9B	91,853	3.93%	4.12%
	W+WLI/LWAL/HBET:1-2/YBET:1980-/SOS/NONRES	$49.3B	99,250	3.88%	4.46%
	W+WLI/LWAL/HBET:1-2/YBET:1980-/SOS/NONRES	$29.7B	44,999	2.33%	2.02%
RC	CR+CIP/LWAL/HBET:1-3/YBET:1976-/NONRES	$19.6B	17,473	1.54%	0.78%
W	W+WLI/LWAL/HBET:1-2/YBET:-1960/SOS/NONRES	$16.1B	38,544	1.27%	1.73%
	W+WLI/LWAL/HBET:1-2/Y:1960-1979/SOS/NONRES	$14.7B	37,539	1.15%	1.69%
MR	MR+CBH/LWAL/HBET:1-3/YBET:1976-/RES	$13.6B	25,951	1.07%	1.17%
RC	CR+CIP/LWAL/HBET:1-3/YBET:1976-/RES	$13.4B	11,836	1.05%	0.53%
	CR+CIP/LWAL/HBET:1-3/YBET:1976-/RES	$12.6B	25,975	0.99%	1.17%
MR	MR+CBH/LWAL/HBET:1-3/YBET:1976-/NONRES	$11.3B	14,671	0.89%	0.66%
	MR+CBH/LWAL/HBET:1-3/YBET:1976-/NONRES	$10.7B	10,565	0.84%	0.47%
S	S/LFM/H:1/YBET:1976-/NONRES	$10.6B	2,807	0.83%	0.13%
RC	CR+PC/LWAL/H:1/YBET:1976-/NONRES	$10.3B	2,898	0.81%	0.13%