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 = "Zimbabwe"
```

```
Exposure files:
  Exposure_Com_Zimbabwe.csv
  Exposure_Ind_Zimbabwe.csv
  Exposure_Res_Zimbabwe.csv
```

Sanity checks and formats

Zimbabwe
```
  Exposure/Exposure/Exposure_Com_Zimbabwe.csv
  Exposure/Exposure/Exposure_Ind_Zimbabwe.csv
  Exposure/Exposure/Exposure_Res_Zimbabwe.csv
  Occupants / Dwellings = 4.0
  Reference avg household size (2019) = 4.04
  Population (exposure / UN_2021) = 0.98
  Exposure models  OK
```

Exposure at National level

Summary by occupancy type

OCCUPANCY	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
Res	14.9M	3,559.9K	$82,823.6M	98.26%	93.06%
Ind	0.0M	11.2K	$1,382.2M	0.31%	1.55%
Com	0.0M	51.9K	$4,796.2M	1.43%	5.39%

Other metrics to consider

OCCUPANCY	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
Total	293,884.1K	$74,388.8M	81	$303
Res	280,908.2K	$69,960.9M	79	$295
Ind	3,188.4K	$908.3M	284	$434
Com	9,787.5K	$3,519.6M	189	$490

Exposure summary at Admin level 1

NAME_1	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
Harare	$14,372.3M	585.0K	2,399.4K	16.15%	16.15%	16.15%
Manicaland	$11,879.8M	483.5K	1,983.4K	13.35%	13.35%	13.35%
Midlands	$10,821.1M	440.4K	1,806.6K	12.16%	12.16%	12.16%
Mashonaland West	$10,709.4M	435.9K	1,788.0K	12.03%	12.03%	12.03%
Masvingo	$10,114.7M	411.7K	1,688.7K	11.36%	11.36%	11.36%
Mashonaland East	$9,925.8M	404.0K	1,657.2K	11.15%	11.15%	11.15%
Mashonaland Central	$8,003.1M	325.8K	1,336.3K	8.99%	8.99%	8.99%
Matabeleland North	$4,817.8M	196.2K	805.0K	5.41%	5.42%	5.42%
Matabeleland South	$4,379.4M	178.4K	731.8K	4.92%	4.92%	4.92%
Bulawayo	$3,978.5M	162.1K	664.9K	4.47%	4.47%	4.47%

Exposure by simplified taxonomy

Adding `MACRO_TAXO` column

MACRO_TAXO	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
MUR	$40,123.5M	1,403,819	5,720.7K	45.08%	38.75%	38.49%
ADO/E	$27,829.9M	1,446,836	5,984.9K	31.27%	39.93%	40.27%
W	$8,224.7M	356,706	1,443.3K	9.24%	9.85%	9.71%
RC	$6,161.3M	88,872	430.7K	6.92%	2.45%	2.90%
MCF	$4,593.9M	99,707	390.0K	5.16%	2.75%	2.62%
OT	$1,605.5M	224,281	891.7K	1.80%	6.19%	6.00%
S	$463.2M	2,806	0.0K	0.52%	0.08%	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_%
ADO/E	MUR+ADO/LWAL+CDN/H:2/RES	$11,414.9M	393,368	14.27%	11.34%
MUR	MUR+CB/LWAL+CDN/H:2/RES	$11,017.9M	341,718	13.77%	9.85%
	MUR+CL/LWAL+CDN/H:2/RES	$8,284.2M	256,929	10.36%	7.40%
ADO/E	MUR+ADO/LWAL+CDN/H:1/RES	$6,931.3M	403,450	8.66%	11.63%
MUR	MUR+CB/LWAL+CDN/H:1/RES	$6,690.3M	350,476	8.36%	10.10%
	MUR+CL/LWAL+CDN/H:1/RES	$5,030.3M	263,520	6.29%	7.59%
ADO/E	E+ETO/LWAL+CDN/H:1/RES	$4,053.4M	283,126	5.07%	8.16%
W	W+WWD/LWAL+CDN/H:1/RES	$2,690.0M	187,887	3.36%	5.41%
ADO/E	EWV/LN+CDN/H:1/RES	$2,447.9M	341,962	3.06%	9.85%
W	W+WWD/LWAL+CDN/H:2/RES	$1,898.6M	78,514	2.37%	2.26%
MCF	MCF+CB/LWAL+CDL/H:2/RES	$1,823.7M	37,707	2.28%	1.09%
RC	CR/LFINF+CDL/H:3/RES	$1,741.9M	24,889	2.18%	0.72%
ADO/E	MUR+ADO/LWAL+CDN/HBET:3-6/RES	$1,509.1M	5,312	1.89%	0.15%
MUR	MUR+CB/LWAL+CDN/HBET:3-6/RES	$1,456.7M	4,612	1.82%	0.13%
	MUR+STRUB/LWAL+CDN/H:2/RES	$1,436.8M	55,704	1.80%	1.61%
RC	CR/LFINF+CDL/H:2/RES	$1,417.8M	31,147	1.77%	0.90%
W	W/LWAL+CDL/H:2/RES	$1,350.1M	34,894	1.69%	1.01%
OT	ME+MEO/LWAL+CDN/H:1/RES	$1,337.9M	186,902	1.67%	5.39%
MCF	MCF+CB/LWAL+CDL/H:1/RES	$1,107.4M	38,675	1.38%	1.11%
MUR	MUR+CL/LWAL+CDN/HBET:3-6/RES	$1,095.2M	3,470	1.37%	0.10%
	MUR+STRUB/LWAL+CDN/H:1/RES	$872.5M	57,132	1.09%	1.65%
W	W/LWAL+CDL/H:3/RES	$829.3M	13,941	1.04%	0.40%
	W/LWAL+CDL/H:1/RES	$819.8M	35,788	1.02%	1.03%
RC	CR/LFINF+CDL/HBET:4-7/RES	$777.2M	1,141	0.97%	0.03%
ADO/E	MUR+ADO/LWAL+CDN/H:2/COM	$692.9M	6,450	0.87%	0.19%
	MUR+ADO/LWAL+CDN/H:1/COM	$674.8M	12,901	0.84%	0.37%
MUR	MUR+STDRE/LWAL+CDN/H:2/RES	$596.9M	18,512	0.75%	0.53%