

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 = "Malawi"
```

Exposure files:
Exposure_Com_Malawi.csv
Exposure_Ind_Malawi.csv
Exposure_Res_Malawi.csv

Sanity checks and formats

Malawi
Exposure/Exposure/Exposure_Com_Malawi.csv
Exposure/Exposure/Exposure_Ind_Malawi.csv
Exposure/Exposure/Exposure_Res_Malawi.csv
Occupants / Dwellings = 4.5
Reference avg household size (2019) = 4.5
Population (exposure / UN_2021) = 0.97
Exposure models OK

Exposure at National level

Summary by occupancy type

	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
OCCUPANCY					
Res	19.1M	4,050.8K	\$59,476.9M	98.57%	94.65%
Ind	0.0M	12.9K	\$960.6M	0.31%	1.53%
Com	0.0M	45.9K	\$2,404.0M	1.12%	3.83%

Other metrics to consider

	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
OCCUPANCY				
Total	337,683.3K	\$52,552.0M	82	\$186
Res	325,553.1K	\$50,116.7M	80	\$183
Ind	3,664.0K	\$636.5M	285	\$262
Com	8,466.3K	\$1,798.8M	184	\$284

Exposure summary at Admin level 1

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
NAME_1						
Central Region	\$27.9B	1,822.1K	8,457.2K	44.34%	44.34%	44.34%
Southern Region	\$26.7B	1,744.9K	8,099.0K	42.46%	42.46%	42.46%
Northern Region	\$8.3B	542.5K	2,518.1K	13.20%	13.20%	13.20%

Exposure by simplified taxonomy

Adding `MACRO_TAXO` column						
	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
MACRO_TAXO						
ADO/E	\$28,362.6M	2,046,867	9,488.3K	45.13%	49.81%	49.74%
MUR	\$27,204.6M	1,543,657	7,189.6K	43.29%	37.56%	37.69%
W	\$4,759.8M	426,984	1,959.5K	7.57%	10.39%	10.27%
RC	\$1,139.4M	27,142	154.6K	1.81%	0.66%	0.81%
MCF	\$927.0M	33,185	152.8K	1.48%	0.81%	0.80%
S	\$323.9M	3,214	0.0K	0.52%	0.08%	0.00%
OT	\$124.2M	28,490	129.4K	0.20%	0.69%	0.68%

Exposure by taxonomy

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

		COST_USD	BUILDINGS	COST_USD_%	BUILDINGS_%
MACRO_TAXO		TAXONOMY			
MUR	MUR+CL/LWAL+CDN/H:2/RES	\$14,348.7M	730.8K	25.50%	18.93%
ADO/E	MUR+ADO/LWAL+CDN/H:2/RES	\$13,535.6M	766.0K	24.06%	19.84%
MUR	MUR+CL/LWAL+CDN/H:1/RES	\$8,712.8M	749.6K	15.48%	19.41%
ADO/E	MUR+ADO/LWAL+CDN/H:1/RES	\$8,219.1M	785.7K	14.61%	20.35%
	E+ETO/LWAL+CDN/H:1/RES	\$3,539.6M	406.0K	6.29%	10.52%
W	W+WWD/LWAL+CDN/H:1/RES	\$2,477.7M	284.2K	4.40%	7.36%
MUR	MUR+CL/LWAL+CDN/HBET:3-6/RES	\$1,897.0M	9.9K	3.37%	0.26%
ADO/E	MUR+ADO/LWAL+CDN/HBET:3-6/RES	\$1,789.5M	10.3K	3.18%	0.27%
W	W+WWD/LWAL+CDN/H:2/RES	\$1,748.8M	118.8K	3.11%	3.08%

--