

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 = "Angola"
```

Exposure files:
Exposure_Com_Angola.csv
Exposure_Ind_Angola.csv
Exposure_Res_Angola.csv

Sanity checks and formats

Angola
Exposure/Exposure/Exposure_Com_Angola.csv
Exposure/Exposure/Exposure_Ind_Angola.csv
Exposure/Exposure/Exposure_Res_Angola.csv
Occupants / Dwellings = 4.7
Reference avg household size (2019) = 4.81
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	32.8M	6,579.9K	\$97,534.6M	94.28%	80.00%
Ind	0.0M	59.8K	\$4,507.5M	0.86%	3.70%
Com	0.0M	339.5K	\$19,872.7M	4.86%	16.30%

Other metrics to consider

	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
OCCUPANCY				
Total	615.1M	\$100,242.6M	88	\$198
Res	532.3M	\$82,737.7M	81	\$183
Ind	17.0M	\$2,925.2M	285	\$265
Com	65.7M	\$14,579.7M	194	\$302

Exposure summary at Admin level 1

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
NAME_1						
Luanda	\$56,282.6M	3,221.4K	15,145.4K	46.17%	46.16%	46.16%
Huambo	\$10,750.1M	615.3K	2,893.0K	8.82%	8.82%	8.82%
Benguela	\$6,618.1M	378.8K	1,781.0K	5.43%	5.43%	5.43%
Cuanza Sul	\$6,329.8M	362.3K	1,703.4K	5.19%	5.19%	5.19%
Huambo	\$5,653.2M	323.6K	1,521.4K	4.64%	4.64%	4.64%
Cabinda	\$4,714.3M	269.9K	1,269.0K	3.87%	3.87%	3.87%
Cunene	\$4,173.0M	238.9K	1,123.3K	3.42%	3.42%	3.42%
Moxico	\$4,021.4M	230.3K	1,082.5K	3.30%	3.30%	3.30%
Bilimo	\$3,610.0M	206.7K	971.8K	2.96%	2.96%	2.96%
Malanje	\$3,191.3M	182.7K	859.1K	2.62%	2.62%	2.62%
Uíge	\$3,046.4M	174.4K	820.1K	2.50%	2.50%	2.50%
Lunda Norte	\$2,956.7M	169.3K	795.9K	2.43%	2.43%	2.43%
Zaire	\$2,644.1M	151.4K	711.8K	2.17%	2.17%	2.17%
Namibe	\$2,132.8M	122.2K	574.3K	1.75%	1.75%	1.75%
Lunda Sul	\$1,707.8M	97.9K	460.2K	1.40%	1.40%	1.40%
Bengo	\$1,502.8M	86.1K	405.0K	1.23%	1.23%	1.23%
Cuando Cubango	\$1,403.1M	80.4K	378.1K	1.15%	1.15%	1.15%
Cuanza Norte	\$1,177.5M	67.5K	317.4K	0.97%	0.97%	0.97%

Exposure by simplified taxonomy

Adding `MACRO_TAXO` column

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
MACRO_TAXO						
MUR	\$55,744.6M	2,974.2K	13,862.5K	45.72%	42.62%	42.25%
ADO/E	\$28,691.8M	2,294.5K	10,489.5K	23.53%	32.88%	31.97%
RC	\$14,361.3M	314.4K	1,972.7K	11.78%	4.50%	6.01%
MCF	\$10,565.7M	355.7K	1,786.4K	8.67%	5.10%	5.44%
W	\$9,347.6M	607.0K	2,732.6K	7.67%	8.70%	8.33%
OT	\$1,754.9M	418.5K	1,968.7K	1.44%	6.00%	6.00%
S	\$1,448.8M	15.0K	0.0K	1.19%	0.21%	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				
MUR	MUR+CB/LWAL+CDN/H:2/RES	\$14,894.1M	788,542	13.61%	11.76%
ADO/E	MUR+ADO/LWAL+CDN/H:2/RES	\$10,564.9M	621,495	9.65%	9.27%
MUR	MUR+CB/LWAL+CDN/H:1/RES	\$9,044.0M	808,765	8.26%	12.06%
	MUR+CL/LWAL+CDN/H:2/RES	\$8,479.7M	448,948	7.75%	6.69%
ADO/E	MUR+ADO/LWAL+CDN/H:1/RES	\$6,415.2M	637,428	5.86%	9.50%
MUR	MUR+CL/LWAL+CDN/H:1/RES	\$5,149.1M	460,458	4.70%	6.86%
ADO/E	E+ETO/LWAL+CDN/H:1/RES	\$3,751.6M	447,317	3.43%	6.67%
MCF	MCF+CB/LWAL+CDL/H:2/RES	\$3,616.4M	127,646	3.30%	1.90%
RC	CR/LFINF+CDL/H:3/RES	\$3,454.1M	84,259	3.16%	1.26%
	CR/LFINF+CDL/H:2/RES	\$2,811.5M	105,435	2.57%	1.57%
W	W+WWD/LWAL+CDN/H:1/RES	\$2,583.8M	308,078	2.36%	4.59%
MUR	MUR+CB/LWAL+CDN/H:2/COM	\$2,553.8M	32,468	2.33%	0.48%
	MUR+CB/LWAL+CDN/H:1/COM	\$2,487.2M	64,928	2.27%	0.97%
MCF	MCF+CB/LWAL+CDL/H:1/RES	\$2,195.9M	130,915	2.01%	1.95%
	MUR+ADO/LWAL+CDN/H:2/COM	\$2,145.9M	34,099	1.96%	0.51%
ADO/E	MUR+ADO/LWAL+CDN/H:1/COM	\$2,090.0M	68,212	1.91%	1.02%
	EWV/LN+CDN/H:1/RES	\$1,996.7M	476,143	1.82%	7.10%
MUR	MUR+CB/LWAL+CDN/HBET:3-6/RES	\$1,969.1M	10,640	1.80%	0.16%
W	W+WWD/LWAL+CDN/H:2/RES	\$1,823.6M	128,734	1.67%	1.92%
RC	CR/LFINF+CDL/HBET:4-7/RES	\$1,541.1M	3,863	1.41%	0.06%
OT	ME+MEO/LWAL+CDN/H:1/RES	\$1,462.4M	348,742	1.34%	5.20%
MUR	MUR+CL/LWAL+CDN/H:2/COM	\$1,453.5M	18,479	1.33%	0.28%
	MUR+CL/LWAL+CDN/H:1/COM	\$1,415.6M	36,962	1.29%	0.55%
ADO/E	MUR+ADO/LWAL+CDN/HBET:3-6/RES	\$1,396.8M	8,384	1.28%	0.12%
W	W/LWAL+CDL/H:2/RES	\$1,296.8M	57,222	1.18%	0.85%
MUR	MUR+STDRE/LWAL+CDN/H:2/RES	\$1,183.7M	62,670	1.08%	0.93%
	MUR+CL/LWAL+CDN/HBET:3-6/RES	\$1,121.1M	6,060	1.02%	0.09%
RC	CR/LWAL+CDL/H:3/RES	\$1,084.1M	26,446	0.99%	0.39%
MCF	MCF+CB/LWAL+CDL/HBET:3-6/RES	\$1,009.4M	3,634	0.92%	0.05%
	MCF+CL/LWAL+CDL/H:2/RES	\$953.2M	33,644	0.87%	0.50%
RC	CR/LWAL+CDL/H:2/RES	\$882.4M	33,092	0.81%	0.49%
MUR	MUR+STRUB/LWAL+CDN/H:2/RES	\$862.3M	57,066	0.79%	0.85%
	W/LWAL+CDL/H:2/COM	\$797.9M	9,413	0.73%	0.14%
W	W/LWAL+CDL/H:3/RES	\$796.6M	22,864	0.73%	0.34%
	W/LWAL+CDL/H:1/RES	\$787.4M	58,681	0.72%	0.87%
	W/LWAL+CDL/H:1/COM	\$777.1M	18,838	0.71%	0.28%
MUR	MUR+CB/LWAL+CDN/H:1/IND	\$731.1M	15,204	0.67%	0.23%
	MUR+STDRE/LWAL+CDN/H:1/RES	\$718.7M	64,274	0.66%	0.96%
RC	CR/LFINF+CDL/H:3/COM	\$592.5M	2,898	0.54%	0.04%
MCF	MCF+CL/LWAL+CDL/H:1/RES	\$578.8M	34,504	0.53%	0.51%