

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 = "Tanzania"
```

Exposure files:
Exposure_Com_Tanzania.csv
Exposure_Ind_Tanzania.csv
Exposure_Res_Tanzania.csv

Sanity checks and formats

Tanzania
Exposure/Exposure/Exposure_Com_Tanzania.csv
Exposure/Exposure/Exposure_Ind_Tanzania.csv
Exposure/Exposure/Exposure_Res_Tanzania.csv
Occupants / Dwellings = 4.6
Reference avg household size (2019) = 4.78
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	59.7M	12,092.0K	\$216.4B	96.28%	87.17%
Ind	0.0M	88.6K	\$7.5B	0.71%	3.02%
Com	0.0M	378.9K	\$24.3B	3.02%	9.80%

Other metrics to consider

	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
OCCUPANCY				
Total	1,109.0M	\$205,840.1M	88	\$224
Res	1,011.1M	\$182,875.2M	84	\$214
Ind	25.2M	\$4,891.2M	285	\$297
Com	72.7M	\$18,073.6M	192	\$335

Exposure summary at Admin level 1

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
NAME_1						
Dar es Salaam	\$29,917.3M	1,513.3K	7,192.9K	12.05%	12.05%	12.05%
Mwanza	\$14,923.8M	754.9K	3,588.1K	6.01%	6.01%	6.01%
Mbeya	\$14,898.0M	753.6K	3,581.9K	6.00%	6.00%	6.00%
Tabora	\$12,947.0M	654.9K	3,112.8K	5.22%	5.21%	5.21%
Kagera	\$12,528.3M	633.7K	3,012.1K	5.05%	5.05%	5.05%
Morogoro	\$11,826.8M	598.3K	2,843.5K	4.76%	4.76%	4.76%
Kigoma	\$11,348.0M	574.1K	2,728.4K	4.57%	4.57%	4.57%
Geita	\$11,083.6M	560.7K	2,664.9K	4.46%	4.46%	4.46%
Tanga	\$10,690.7M	540.8K	2,570.4K	4.31%	4.31%	4.31%
Dodoma	\$10,655.2M	539.0K	2,561.8K	4.29%	4.29%	4.29%
Arusha	\$9,631.3M	487.2K	2,315.7K	3.88%	3.88%	3.88%
Mara	\$9,358.2M	473.4K	2,250.1K	3.77%	3.77%	3.77%
Simiyu	\$9,102.8M	460.5K	2,188.6K	3.67%	3.67%	3.67%
Manyara	\$8,352.6M	422.5K	2,008.3K	3.36%	3.36%	3.36%
Kilimanjaro	\$8,054.1M	407.4K	1,936.6K	3.24%	3.24%	3.24%
Shinyanga	\$7,997.2M	404.6K	1,922.9K	3.22%	3.22%	3.22%
Singida	\$7,384.5M	373.6K	1,775.8K	2.97%	2.97%	2.97%
Ruvuma	\$7,230.9M	365.9K	1,738.9K	2.91%	2.91%	2.91%
Mtwara	\$6,211.5M	314.3K	1,493.8K	2.50%	2.50%	2.50%
Pwani	\$6,087.3M	308.0K	1,463.9K	2.45%	2.45%	2.45%
Rukwa	\$5,634.5M	285.1K	1,355.0K	2.27%	2.27%	2.27%
Iringa	\$4,563.4M	231.0K	1,097.8K	1.84%	1.84%	1.84%
Lindi	\$4,051.8M	205.1K	974.8K	1.63%	1.63%	1.63%
Zanzibar Urban/West	\$3,508.9M	177.6K	844.3K	1.41%	1.41%	1.41%
Njombe	\$3,289.4M	166.5K	791.5K	1.33%	1.33%	1.33%
Katavi	\$3,216.0M	162.8K	773.9K	1.30%	1.30%	1.30%
Zanzibar North	\$1,238.8M	62.8K	298.4K	0.50%	0.50%	0.50%
North Pemba	\$1,052.0M	53.3K	253.4K	0.42%	0.42%	0.42%
South Pemba	\$907.5M	46.0K	218.8K	0.37%	0.37%	0.37%
Zanzibar South & Central	\$559.7M	28.5K	135.4K	0.23%	0.23%	0.23%

Exposure by simplified taxonomy

Adding `MACRO_TAXO` column

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
MACRO_TAXO						
MUR	\$101,187.5M	4,911.1K	22,571.3K	40.76%	39.10%	37.81%
ADO/E	\$58,907.8M	3,417.4K	16,426.6K	23.73%	27.21%	27.52%
W	\$34,583.9M	2,922.6K	14,161.9K	13.93%	23.27%	23.72%
RC	\$32,287.8M	668.3K	3,744.4K	13.01%	5.32%	6.27%
MCF	\$18,705.9M	588.2K	2,651.8K	7.54%	4.68%	4.44%
S	\$2,436.5M	22.2K	0.0K	0.98%	0.18%	0.00%
OT	\$141.5M	29.7K	138.8K	0.06%	0.24%	0.23%

Exposure by taxonomy

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

		COST_USD	BUILDINGS	COST_USD_%	BUILDINGS_%
MACRO_TAXO	TAXONOMY				
ADO/E	MUR+ADO/LWAL+CDN/H:2/RES	\$29,181.0M	1,512.1K	13.08%	12.73%
MUR	MUR+CL/LWAL+CDN/H:2/RES	\$28,656.3M	1,336.5K	12.85%	11.25%
W	W+WWD/LWAL+CDN/H:1/RES	\$19,035.8M	1,999.4K	8.53%	16.84%
MUR	MUR+CB/LWAL+CDN/H:2/RES	\$18,957.9M	884.1K	8.50%	7.44%
ADO/E	MUR+ADO/LWAL+CDN/H:1/RES	\$17,719.3M	1,550.9K	7.94%	13.06%
MUR	MUR+CL/LWAL+CDN/H:1/RES	\$17,400.7M	1,370.7K	7.80%	11.54%
W	W+WWD/LWAL+CDN/H:2/RES	\$13,435.4M	835.5K	6.02%	7.03%
MUR	MUR+CB/LWAL+CDN/H:1/RES	\$11,511.6M	906.8K	5.16%	7.64%
RC	CR/LFINF+CDL/H:3/RES	\$9,617.1M	206.7K	4.31%	1.74%
	CR/LFINF+CDL/H:2/RES	\$7,827.8M	258.6K	3.51%	2.18%
MCF	MCF+CB/LWAL+CDL/H:2/RES	\$5,480.2M	170.4K	2.46%	1.43%
RC	CR/LFINF+CDL/HBET:4-7/RES	\$4,290.9M	9.5K	1.92%	0.08%
ADO/E	MUR+ADO/LWAL+CDN/HBET:3-6/RES	\$3,858.0M	20.4K	1.73%	0.17%
MUR	MUR+CL/LWAL+CDN/HBET:3-6/RES	\$3,788.6M	18.0K	1.70%	0.15%
	MUR+CL/LWAL+CDN/H:2/COM	\$3,715.1M	41.6K	1.67%	0.35%
	MUR+CL/LWAL+CDN/H:1/COM	\$3,618.3M	83.2K	1.62%	0.70%
ADO/E	MUR+ADO/LWAL+CDN/H:2/COM	\$3,407.6M	47.7K	1.53%	0.40%
MCF	MCF+CL/LWAL+CDL/H:2/RES	\$3,386.5M	105.3K	1.52%	0.89%
	MCF+CB/LWAL+CDL/H:1/RES	\$3,327.7M	174.8K	1.49%	1.47%
ADO/E	MUR+ADO/LWAL+CDN/H:1/COM	\$3,318.8M	95.4K	1.49%	0.80%
MUR	MUR+CB/LWAL+CDN/HBET:3-6/RES	\$2,506.4M	11.9K	1.12%	0.10%
MCF	MCF+CL/LWAL+CDL/H:1/RES	\$2,056.3M	108.0K	0.92%	0.91%
	MUR+CB/LWAL+CDN/H:2/COM	\$1,868.9M	20.9K	0.84%	0.18%
MUR	MUR+CB/LWAL+CDN/H:1/COM	\$1,820.2M	41.9K	0.82%	0.35%
	MUR+CL/LWAL+CDN/H:1/IND	\$1,655.9M	30.3K	0.74%	0.26%
RC	CR/LWAL+CDL/H:3/RES	\$1,642.9M	35.3K	0.74%	0.30%