

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 = "Morocco"
```

Exposure files:
Exposure_Com_Morocco.csv
Exposure_Ind_Morocco.csv
Exposure_Res_Morocco.csv

Sanity checks and formats

Morocco
Exposure/Exposure/Exposure_Com_Morocco.csv
Exposure/Exposure/Exposure_Ind_Morocco.csv
Exposure/Exposure/Exposure_Res_Morocco.csv
Occupants / Dwellings = 4.2
Reference avg household size (2019) = 4.72
Population (exposure / UN_2021) = 0.98
Exposure models OK

Exposure at National level

Summary by occupancy type

	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
OCCUPANCY					
Res	36.7M	7,983.9K	\$201.8B	96.68%	88.86%
Ind	0.0M	102.4K	\$10.2B	1.24%	4.50%
Com	0.0M	172.1K	\$15.1B	2.08%	6.64%

Other metrics to consider

	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
OCCUPANCY				
Total	785.0M	\$191.7B	95	\$289
Res	720.3M	\$174.1B	90	\$280
Ind	29.2M	\$6.5B	285	\$350
Com	35.6M	\$11.1B	207	\$424

Exposure summary at Admin level 1

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
NAME_1						
Casablanca-Settat	\$48,340.8M	1,724,846	7,705.1K	21.29%	20.89%	20.97%
Rabat-Salé-Kenitra	\$31,887.6M	1,141,835	5,082.4K	14.04%	13.83%	13.83%
Marrakech-Safi	\$30,045.2M	1,127,515	4,995.3K	13.23%	13.65%	13.60%
Fez-Meknes	\$28,171.4M	1,031,014	4,581.9K	12.40%	12.48%	12.47%
Tangier-Tetouan-Al Hoceima	\$24,713.9M	890,492	3,966.1K	10.88%	10.78%	10.80%
Souss-Massa	\$18,630.4M	670,236	2,986.2K	8.20%	8.12%	8.13%
Béni Mellal-Khénifra	\$16,701.7M	602,343	2,683.7K	7.35%	7.29%	7.31%
Oriental	\$15,092.9M	552,408	2,455.4K	6.65%	6.69%	6.68%
Drâa-Tafilalet	\$10,291.6M	401,524	1,764.2K	4.53%	4.86%	4.80%
Guelmim-Oued Noun	\$2,023.2M	74,851	332.6K	0.89%	0.91%	0.91%
Dakhla-Oued Ed-Dahab	\$1,122.7M	38,235	170.4K	0.49%	0.46%	0.46%
Laâyoune-Sakia El Hamra	\$81.4M	3,073	13.6K	0.04%	0.04%	0.04%

Exposure by simplified taxonomy

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
MACRO_TAXO						
MUR	\$109,837.8M	5,114.9K	21,904.9K	48.36%	61.94%	59.63%
RC	\$64,535.6M	1,202.2K	6,519.2K	28.42%	14.56%	17.75%
MCF	\$35,307.3M	993.0K	4,346.2K	15.55%	12.02%	11.83%
ADO/E	\$12,822.5M	831.9K	3,584.8K	5.65%	10.07%	9.76%
S	\$3,181.5M	25.6K	0.0K	1.40%	0.31%	0.00%
W	\$1,223.6M	54.5K	228.7K	0.54%	0.66%	0.62%
OT	\$194.5M	36.2K	153.2K	0.09%	0.44%	0.42%

Exposure by taxonomy

		COST_USD	BUILDINGS	COST_USD_%	BUILDINGS_%
MACRO_TAXO	TAXONOMY				
	MUR+CB/LWAL+CDN/H:2/RES	\$22,174.9M	915,413	10.86%	11.63%
MUR	MUR+CL/LWAL+CDN/H:2/RES	\$22,174.9M	915,413	10.86%	11.63%
	MUR+CB/LWAL+CDN/H:1/RES	\$13,465.0M	938,889	6.60%	11.92%
	MUR+CL/LWAL+CDN/H:1/RES	\$13,465.0M	938,889	6.60%	11.92%
MCF	MCF/LWAL+CDL/H:2/RES	\$13,019.2M	358,302	6.38%	4.55%
	CR/LFINF+CDL/H:3/RES	\$11,708.8M	222,703	5.74%	2.83%
RC	CR/LFINF+CDL/H:2/RES	\$9,530.4M	278,682	4.67%	3.54%
MCF	MCF/LWAL+CDL/H:1/RES	\$7,905.5M	367,491	3.87%	4.67%
	CR/LDUAL+CDL/H:3/RES	\$5,854.4M	111,355	2.87%	1.41%
RC	CR/LFINF+CDL/HBET:4-7/RES	\$5,224.2M	10,208	2.56%	0.13%
	CR/LDUAL+CDL/H:2/RES	\$4,765.2M	139,339	2.33%	1.77%
MUR	MUR+STRUB+MOM/LWAL+CDN/H:2/RES	\$4,645.0M	239,693	2.28%	3.04%
	E+ETO/LWAL+CDN/H:1/RES	\$4,471.1M	415,679	2.19%	5.28%
ADO/E	MUR+ADO/LWAL+CDN/H:2/RES	\$4,197.0M	192,513	2.06%	2.44%
	MCF/LWAL+CDM/H:2/RES	\$4,006.0M	110,250	1.96%	1.40%
MCF	MCF/LWAL+CDL/HBET:3-6/RES	\$3,633.7M	10,208	1.78%	0.13%
	CR/LFINF+CDM/H:3/RES	\$3,602.7M	68,527	1.76%	0.87%
RC	CR/LFINF+CDM/H:2/RES	\$2,932.5M	85,748	1.44%	1.09%
	MUR+CB/LWAL+CDN/HBET:3-6/RES	\$2,931.7M	12,348	1.44%	0.16%
MUR	MUR+CL/LWAL+CDN/HBET:3-6/RES	\$2,931.7M	12,348	1.44%	0.16%
	MUR+STRUB+MOM/LWAL+CDN/H:1/RES	\$2,820.5M	245,838	1.38%	3.12%
RC	CR/LDUAL+CDL/HBET:4-7/RES	\$2,612.1M	5,104	1.28%	0.06%
ADO/E	MUR+ADO/LWAL+CDN/H:1/RES	\$2,548.5M	197,448	1.25%	2.51%
MCF	MCF/LWAL+CDM/H:1/RES	\$2,432.5M	113,077	1.19%	1.44%
	MUR+STRUB+MOC/LWAL+CDN/H:2/RES	\$2,340.7M	120,785	1.15%	1.53%
MUR	MUR+STRUB+MOL/LWAL+CDN/H:2/RES	\$2,340.7M	120,785	1.15%	1.53%
	CR/LDUAL+CDM/H:3/RES	\$1,801.4M	34,262	0.88%	0.44%
	CR/LFINF+CDL/H:1/RES	\$1,653.4M	81,665	0.81%	1.04%
RC	CR/LFINF+CDL/HBET:8+/RES	\$1,632.6M	2,552	0.80%	0.03%
	CR/LFINF+CDM/HBET:4-7/RES	\$1,607.5M	3,141	0.79%	0.04%
	CR/LDUAL+CDM/H:2/RES	\$1,466.2M	42,874	0.72%	0.54%
	MUR+STRUB+MOC/LWAL+CDN/H:1/RES	\$1,421.3M	123,881	0.70%	1.57%
	MUR+STRUB+MOL/LWAL+CDN/H:1/RES	\$1,421.3M	123,881	0.70%	1.57%
	MUR+CB/LWAL+CDN/H:2/COM	\$1,381.8M	13,697	0.68%	0.17%
MUR	MUR+CL/LWAL+CDN/H:2/COM	\$1,381.8M	13,697	0.68%	0.17%
	MUR+CB/LWAL+CDN/H:1/COM	\$1,345.8M	27,393	0.66%	0.35%
	MUR+CL/LWAL+CDN/H:1/COM	\$1,345.8M	27,393	0.66%	0.35%
	MUR+STDRE+MOC/LWAL+CDN/H:2/RES	\$1,164.5M	48,075	0.57%	0.61%
	MUR+STDRE+MOL/LWAL+CDN/H:2/RES	\$1,164.5M	48,075	0.57%	0.61%
MCF	MCF/LWAL+CDM/HBET:3-6/RES	\$1,118.1M	3,142	0.55%	0.04%
	MUR+CB/LWAL+CDN/H:1/IND	\$903.4M	14,640	0.44%	0.19%
MUR	MUR+CL/LWAL+CDN/H:1/IND	\$903.4M	14,640	0.44%	0.19%
RC	CR/LDUAL+CDL/H:1/RES	\$826.7M	40,832	0.40%	0.52%
S	S/LFM+CDL/H:1/IND	\$818.6M	8,533	0.40%	0.11%
	CR/LDUAL+CDL/HBET:8+/RES	\$816.0M	1,275	0.40%	0.02%
RC	CR/LDUAL+CDM/HBET:4-7/RES	\$803.8M	1,571	0.39%	0.02%
	CR/LFINF+CDL/H:3/COM	\$714.7M	2,723	0.35%	0.03%
MUR	MUR+STDRE+MOC/LWAL+CDN/H:1/RES	\$707.1M	49,308	0.35%	0.63%