

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 = "Qatar"
```

Exposure files:
Exposure_Com_Qatar.csv
Exposure_Ind_Qatar.csv
Exposure_Res_Qatar.csv

Sanity checks and formats

Qatar
Exposure/Exposure/Exposure_Com_Qatar.csv
Exposure/Exposure/Exposure_Ind_Qatar.csv
Exposure/Exposure/Exposure_Res_Qatar.csv
Occupants / Dwellings = 5.3
Reference avg household size (2019) = 4.7
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	2,845.6K	274.9K	\$130.5B	90.45%	79.93%
Ind	0.0K	11.5K	\$11.3B	3.80%	6.93%
Com	0.0K	17.5K	\$21.4B	5.75%	13.14%

Other metrics to consider

	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
OCCUPANCY				
Total	98.6M	\$116.9B	325	\$1,655
Res	83.3M	\$98.3B	303	\$1,566
Ind	7.9M	\$5.5B	687	\$1,425
Com	7.4M	\$13.2B	423	\$2,905

Exposure summary at Admin level 1

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
NAME_1						
Doha	\$81,600.3M	101,830	1,186.0K	49.99%	33.51%	41.68%
Al Rayyan	\$41,700.9M	104,995	826.8K	25.54%	34.55%	29.05%
Al Wakra	\$15,744.8M	22,283	265.1K	9.64%	7.33%	9.32%
Al Khor and Al Thakhira	\$7,943.0M	22,213	140.5K	4.87%	7.31%	4.94%
Umm Slal	\$5,933.3M	17,737	149.6K	3.63%	5.84%	5.26%
Al Sheehaniya	\$5,363.0M	21,239	161.2K	3.29%	6.99%	5.67%
Al Daayen	\$4,438.7M	11,047	100.1K	2.72%	3.64%	3.52%
Al Shamal	\$525.5M	2,558	16.4K	0.32%	0.84%	0.57%

Exposure by simplified taxonomy

Adding `MACRO_TAX0` column

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
MACRO_TAXO						
RC	\$141,836.2M	210,623	2,421.9K	86.88%	69.31%	85.11%
MUR	\$7,123.8M	44,780	223.0K	4.36%	14.74%	7.84%
S	\$5,343.5M	4,370	0.0K	3.27%	1.44%	0.00%
MCF	\$4,090.8M	11,691	47.6K	2.51%	3.85%	1.67%
MR	\$3,628.8M	5,218	0.0K	2.22%	1.72%	0.00%
OT	\$1,226.5M	27,220	153.0K	0.75%	8.96%	5.38%

Exposure by taxonomy

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

		COST_USD	BUILDINGS	COST_USD_%	BUILDINGS_%
MACRO_TAXO	TAXONOMY				
	CR+CIP/LFINF+CDL/H:2/RES	\$22,070.9M	80,084	15.03%	28.88%
	CR/LFINF+CDL/HBET:4-7/RES	\$18,490.4M	3,048	12.59%	1.10%
	CR/LFINF+CDL/HBET:8-/RES	\$11,293.4M	838	7.69%	0.30%
	CR+CIP/LFINF+CDL/H:1/RES	\$11,035.4M	40,041	7.52%	14.44%
	CR/LFINF+CDL/H:3/RES	\$8,218.0M	2,795	5.60%	1.01%
	CR+CIP/LFINF+CDM/H:2/RES	\$7,357.0M	26,697	5.01%	9.63%
	CR/LFINF+CDM/HBET:4-7/RES	\$6,163.5M	1,015	4.20%	0.37%
	CR/LDUAL+CDL/HBET:4-7/RES	\$4,620.0M	761	3.15%	0.27%
	CR/LFINF+CDM/HBET:8-/RES	\$3,764.5M	279	2.56%	0.10%
	CR+CIP/LFINF+CDL/H:3/RES	\$3,678.5M	13,347	2.51%	4.81%
	CR+CIP/LFINF+CDM/H:1/RES	\$3,678.5M	13,347	2.51%	4.81%
	CR/LFINF+CDL/H:1/RES	\$3,595.4M	4,191	2.45%	1.51%
	CR/LFINF+CDL/H:2/RES	\$3,595.4M	2,095	2.45%	0.76%
	CR/LDUAL+CDL/HBET:8-/RES	\$2,823.4M	209	1.92%	0.08%
	CR/LFINF+CDM/H:3/RES	\$2,739.3M	932	1.87%	0.34%
	CR/LFINF+CDL/HBET:4-7/COM	\$2,077.8M	533	1.42%	0.19%
MUR	MUR+STDRE/LWAL+CDN/H:2/RES	\$2,059.3M	19,772	1.40%	7.13%
	CR/LDUAL+CDL/H:3/RES	\$2,053.3M	697	1.40%	0.25%
RC	CR/LFINF+CDL/HBET:8-/COM	\$1,681.7M	146	1.15%	0.05%
MUR	MUR+CB/LWAL+CDN/HBET:3-6/COM	\$1,600.9M	608	1.09%	0.22%
	CR/LDUAL+CDM/HBET:4-7/RES	\$1,540.0M	253	1.05%	0.09%
S	S/LFM+CDL/H:1/IND	\$1,478.7M	1,950	1.01%	0.70%
MUR	MUR+STDRE/LWAL+CDN/H:1/RES	\$1,446.1M	19,772	0.98%	7.13%
OT	MATO/RES	\$1,226.5M	27,220	0.84%	9.82%
	CR+CIP/LFINF+CDM/H:3/RES	\$1,226.1M	4,449	0.84%	1.60%
RC	CR/LFINF+CDM/H:1/RES	\$1,198.5M	1,397	0.82%	0.50%
	CR/LFINF+CDM/H:2/RES	\$1,197.8M	697	0.82%	0.25%
MR	MR+CB/LWAL+CDL/HBET:3-6/COM	\$1,195.6M	456	0.81%	0.16%
	CR+PC/LWAL+CDL/H:1/IND	\$1,095.4M	1,300	0.75%	0.47%
RC	CR/LFINF+CDL/H:1/IND	\$1,095.4M	1,300	0.75%	0.47%
S	S/LFM+CDL/H:2/IND	\$985.8M	650	0.67%	0.23%
RC	CR/LDUAL+CDM/HBET:8-/RES	\$936.1M	69	0.64%	0.02%
MUR	MUR+CB/LWAL+CDN/H:2/COM	\$923.2M	1,619	0.63%	0.58%
	CR/LDUAL+CDL/HBET:4-7/COM	\$900.7M	236	0.61%	0.09%
	CR/LWAL+CDL/HBET:4-7/COM	\$900.7M	236	0.61%	0.09%
RC	CR/LDUAL+CDL/H:1/RES	\$898.8M	1,049	0.61%	0.38%
	CR/LDUAL+CDL/H:2/RES	\$898.3M	524	0.61%	0.19%
MCF	MCF/LWAL+CDL/HBET:3-6/COM	\$783.8M	299	0.53%	0.11%
	CR+PC/LWAL+CDL/H:2/IND	\$729.5M	434	0.50%	0.16%
RC	CR/LFINF+CDL/H:2/IND	\$729.5M	434	0.50%	0.16%
S	S/LFM+CDL/HBET:4-7/COM	\$727.7M	173	0.50%	0.06%
	CR/LDUAL+CDL/HBET:8-/COM	\$709.4M	62	0.48%	0.02%
RC	CR/LWAL+CDL/HBET:8-/COM	\$709.4M	62	0.48%	0.02%
MR	MR+CB/LWAL+CDL/H:2/COM	\$691.5M	1,209	0.47%	0.44%

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