

# 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 = "Lebanon"
```

Exposure files:  
Exposure\_Com\_Lebanon.csv  
Exposure\_Ind\_Lebanon.csv  
Exposure\_Res\_Lebanon.csv

## Sanity checks and formats

## Exposure at National level

### Summary by occupancy type

	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
OCCUPANCY					
Res	6.8M	477.4K	\$201.3B	84.59%	76.07%
Ind	0.0M	12.8K	\$6.2B	2.27%	2.35%
Com	0.0M	74.2K	\$57.1B	13.14%	21.58%

### Other metrics to consider

	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
OCCUPANCY				
Total	212.4M	\$188,999.4M	376	\$1,246
Res	180.2M	\$150,688.5M	378	\$1,117
Ind	5.3M	\$3,011.1M	414	\$1,174
Com	26.8M	\$35,299.8M	362	\$2,129

## Exposure summary at Admin level 1

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
NAME_1						
Mount Lebanon Governorate	\$89.9B	196.0K	2,701.6K	33.99%	34.73%	39.99%
North Lebanon Governorate	\$50.7B	102.8K	1,382.9K	19.18%	18.21%	20.47%
Beqaa Governorate	\$44.6B	93.1K	846.9K	16.85%	16.50%	12.54%
South Lebanon Governorate	\$29.6B	60.6K	721.8K	11.18%	10.73%	10.69%
Nabatiyeh Governorate	\$28.4B	60.6K	399.2K	10.74%	10.75%	5.91%
Beirut Governorate	\$21.4B	51.3K	702.7K	8.08%	9.08%	10.40%

## Exposure by simplified taxonomy

Adding `MACRO_TAXO` column						
	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
MACRO_TAXO						
RC	\$133,113.5M	119.1K	3,495.9K	50.31%	21.10%	51.75%
MCF	\$71,275.8M	108.2K	2,285.0K	26.94%	19.18%	33.83%
MUR	\$41,302.7M	265.7K	826.7K	15.61%	47.08%	12.24%
MR	\$10,601.4M	21.9K	0.0K	4.01%	3.88%	0.00%
S	\$6,283.3M	7.0K	0.0K	2.37%	1.24%	0.00%
OT	\$945.3M	25.5K	88.6K	0.36%	4.51%	1.31%
W	\$669.6M	8.5K	29.5K	0.25%	1.50%	0.44%
ADO/E	\$382.6M	8.5K	29.5K	0.14%	1.50%	0.44%

## Exposure by taxonomy

Showing only taxonomies that represent 90% of the total `COST\_USD`

		COST_USD	BUILDINGS	COST_USD_%	BUILDINGS_%
MACRO_TAXO	TAXONOMY				
RC	CR/LFINF+CDL/HBET:4-7/RES	\$32,851.4M	15,852	13.83%	3.36%
MCF	MCF/LWAL+CDL/HBET:3-6/RES	\$27,542.4M	16,998	11.60%	3.60%
	MCF/LWAL+CDL/H:2/RES	\$22,064.3M	37,983	9.29%	8.04%
RC	CR/LFINF+CDL/HBET:8-/RES	\$19,620.1M	4,361	8.26%	0.92%
MUR	MUR+STDRE/LWAL+CDN/H:2/RES	\$16,743.0M	110,804	7.05%	23.46%
	MUR+STDRE/LWAL+CDN/H:1/RES	\$13,952.5M	132,964	5.87%	28.15%
RC	CR/LFINF+CDL/H:3/RES	\$13,231.4M	14,484	5.57%	3.07%
MCF	MCF/LWAL+CDL/H:1/RES	\$10,994.1M	36,107	4.63%	7.64%
RC	CR/LFINF+CDL/H:2/RES	\$6,580.2M	12,855	2.77%	2.72%
	CR/LFINF+CDL/H:1/RES	\$6,544.7M	23,834	2.76%	5.05%
	CR/LDUAL+CDL/HBET:4-7/RES	\$6,388.7M	3,066	2.69%	0.65%
MUR	CR/LFINF+CDL/HBET:4-7/COM	\$6,028.5M	2,026	2.54%	0.43%
	MUR+CB/LWAL+CDN/HBET:3-6/COM	\$4,584.0M	2,282	1.93%	0.48%
MR	MR+CB/LWAL+CDL/HBET:3-6/COM	\$4,203.6M	2,092	1.77%	0.44%
RC	CR/LDUAL+CDL/HBET:8-/RES	\$3,830.7M	843	1.61%	0.18%
MUR	MUR+CB/LWAL+CDN/H:2/COM	\$3,505.6M	7,603	1.48%	1.61%
RC	CR/LWAL+CDL/HBET:4-7/COM	\$3,450.2M	1,181	1.45%	0.25%
	CR/LDUAL+CDL/HBET:4-7/COM	\$3,450.2M	1,181	1.45%	0.25%
MR	MR+CB/LWAL+CDL/H:2/COM	\$3,218.0M	6,978	1.35%	1.48%
RC	CR/LFINF+CDM/HBET:4-7/RES	\$2,936.2M	1,421	1.24%	0.30%
	CR/LDUAL+CDL/H:3/RES	\$2,553.3M	2,807	1.08%	0.59%
MCF	MCF/LWAL+CDM/HBET:3-6/RES	\$2,461.7M	1,520	1.04%	0.32%
	MCF/LWAL+CDL/HBET:3-6/COM	\$2,388.6M	1,181	1.01%	0.25%
MUR	MUR+CB/LWAL+CDN/H:1/COM	\$2,266.4M	11,400	0.95%	2.41%
RC	CR/LFINF+CDL/HBET:8-/COM	\$2,244.0M	247	0.94%	0.05%
S	S/LFM+CDL/HBET:4-7/COM	\$2,173.4M	674	0.92%	0.14%
MR	MR+CB/LWAL+CDL/H:1/COM	\$2,080.5M	10,467	0.88%	2.22%
MCF	MCF/LWAL+CDM/H:2/RES	\$1,972.0M	3,394	0.83%	0.72%
RC	CR/LFINF+CDL/H:3/COM	\$1,960.8M	2,110	0.83%	0.45%
	CR/LFINF+CDM/HBET:8-/RES	\$1,747.7M	388	0.74%	0.08%
MCF	MCF/LWAL+CDL/H:2/COM	\$1,363.6M	2,965	0.57%	0.63%
RC	CR/LDUAL+CDL/HBET:8-/COM	\$1,283.9M	143	0.54%	0.03%
	CR/LWAL+CDL/HBET:8-/COM	\$1,283.9M	143	0.54%	0.03%

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