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 = "Syria"
```

```
Exposure files:
  Exposure_Com_Syria.csv
  Exposure_Ind_Syria.csv
  Exposure_Res_Syria.csv
```

Sanity checks and formats

```
Syria
  Exposure/Exposure/Exposure_Com_Syria.csv
  Exposure/Exposure/Exposure_Ind_Syria.csv
  Exposure/Exposure/Exposure_Res_Syria.csv
  Occupants / Dwellings = 4.9
  No refence household size data available
  Population (exposure / UN_2021) = 1.0
  Exposure models  OK
```

Exposure at National level

Summary by occupancy type

OCCUPANCY	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
Res	18.3M	3,215.3K	$185.6B	93.14%	79.21%
Ind	0.0M	50.8K	$14.0B	1.47%	5.98%
Com	0.0M	186.1K	$34.7B	5.39%	14.81%

Other metrics to consider

OCCUPANCY	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
Total	476.4M	$180.2B	138	$492
Res	406.9M	$149.3B	127	$456
Ind	21.1M	$7.5B	415	$664
Com	48.4M	$23.4B	260	$717

Exposure summary at Admin level 1

NAME_1	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
Aleppo	$46,130.1M	776.0K	4,123.2K	19.69%	22.48%	22.56%
Rif Dimashq	$35,222.6M	474.3K	2,319.7K	15.03%	13.74%	12.69%
Damascus Governorate	$24,908.2M	341.8K	1,582.4K	10.63%	9.90%	8.66%
Homs	$22,254.6M	298.4K	1,561.4K	9.50%	8.65%	8.54%
Hama	$17,834.7M	248.5K	1,413.9K	7.61%	7.20%	7.73%
Latakia	$15,807.3M	218.9K	896.9K	6.75%	6.34%	4.91%
Idlib	$13,055.4M	228.0K	1,283.1K	5.57%	6.60%	7.02%
Al-Hasakah	$12,477.4M	213.9K	1,301.6K	5.33%	6.20%	7.12%
Tartus	$12,304.4M	172.6K	715.3K	5.25%	5.00%	3.91%
Deir ez-Zor	$10,517.4M	145.1K	1,025.0K	4.49%	4.20%	5.61%
Daraa	$9,972.7M	129.8K	860.0K	4.26%	3.76%	4.70%
Ar-Raqqah	$8,011.0M	125.1K	808.9K	3.42%	3.62%	4.43%
As-Suwayda	$4,922.2M	67.9K	319.7K	2.10%	1.97%	1.75%
Quneitra	$873.1M	11.9K	68.0K	0.37%	0.34%	0.37%

Exposure by simplified taxonomy

Adding `MACRO_TAXO` column

MACRO_TAXO	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
RC	$98,744.0M	1,202,962	6,113.2K	42.15%	34.85%	33.44%
MCF	$68,935.7M	773,102	4,766.6K	29.42%	22.39%	26.08%
MUR	$51,517.3M	1,164,686	5,884.3K	21.99%	33.74%	32.19%
ADO/E	$8,671.7M	233,826	1,225.1K	3.70%	6.77%	6.70%
S	$4,142.7M	15,252	0.0K	1.77%	0.44%	0.00%
OT	$1,200.5M	49,110	237.5K	0.51%	1.42%	1.30%
MR	$569.6M	2,540	0.0K	0.24%	0.07%	0.00%
W	$509.7M	10,752	52.4K	0.22%	0.31%	0.29%

Exposure by taxonomy

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

MACRO_TAXO	TAXONOMY	COST_USD	BUILDINGS	COST_USD_%	BUILDINGS_%
RC	CR+CIP/LFINF+CDL/H:1/RES	$12,066.6M	219,393	5.73%	6.66%
	CR+CIP/LFINF+CDL/H:2/RES	$12,066.6M	219,393	5.73%	6.66%
MCF	MCF/LWAL+CDL/H:1/RES	$11,220.2M	191,251	5.33%	5.80%
	MCF/LWAL+CDL/H:2/RES	$11,220.2M	191,251	5.33%	5.80%
RC	CR+CIP/LFINF+CDM/H:1/RES	$10,279.0M	186,891	4.88%	5.67%
	CR+CIP/LFINF+CDM/H:2/RES	$10,279.0M	186,891	4.88%	5.67%
	MCF/LWAL+CDL/HBET:3-6/RES	$10,229.3M	13,662	4.86%	0.41%
MCF	MCF/LWAL+CDM/H:1/RES	$9,557.9M	162,919	4.54%	4.94%
	MCF/LWAL+CDM/H:2/RES	$9,557.9M	162,919	4.54%	4.94%
	MCF/LWAL+CDM/HBET:3-6/RES	$8,713.9M	11,637	4.14%	0.35%
MUR	MUR+CB/LWAL+CDN/H:3/RES	$8,181.9M	131,118	3.89%	3.98%
	MUR+CB/LWAL+CDN/H:2/RES	$7,211.6M	196,681	3.43%	5.97%
RC	CR+CIP/LFINF+CDL/H:3/RES	$6,845.1M	73,131	3.25%	2.22%
MUR	MUR+CB/LWAL+CDM/H:1/RES	$6,181.4M	168,582	2.94%	5.12%
RC	CR+CIP/LFINF+CDM/H:3/RES	$5,831.0M	62,302	2.77%	1.89%
	CR/LFINF+CDL/HBET:4-7/COM	$4,819.7M	5,222	2.29%	0.16%
MUR	MUR+STDRE/LWAL+CDN/H:1/RES	$4,795.3M	130,780	2.28%	3.97%
	MUR+STDRE/LWAL+CDN/H:2/RES	$4,795.3M	130,780	2.28%	3.97%
RC	CR/LFINF+CDM/HBET:4-7/COM	$4,105.6M	4,447	1.95%	0.13%
MUR	MUR+STRUB/LWAL+CDN/H:1/RES	$3,923.4M	133,751	1.86%	4.06%
	MUR+STRUB/LWAL+CDN/H:2/RES	$3,923.4M	133,751	1.86%	4.06%
ADO/E	EU/LWAL+CDN/H:1/RES	$3,219.3M	109,749	1.53%	3.33%
RC	CR/LFINF+CDL/H:3/RES	$2,968.9M	31,718	1.41%	0.96%
MUR	MUR+CB/LWAL+CDN/HBET:3-6/COM	$2,762.6M	5,371	1.31%	0.16%
	MUR+STDRE/LWAL+CDN/H:3/RES	$2,720.2M	43,592	1.29%	1.32%
RC	CR/LFINF+CDM/H:3/RES	$2,529.0M	27,019	1.20%	0.82%
ADO/E	MUR+ADO/LWAL+CDN/H:1/RES	$2,253.5M	54,876	1.07%	1.67%
	MUR+ADO/LWAL+CDN/H:2/RES	$2,253.5M	54,876	1.07%	1.67%
RC	CR/LFINF+CDL/H:2/RES	$2,243.0M	40,781	1.07%	1.24%
MCF	MCF/LWAL+CDL/HBET:3-6/COM	$2,121.7M	3,092	1.01%	0.09%
MUR	MUR+CB/LWAL+CDN/H:2/COM	$2,025.9M	17,907	0.96%	0.54%
RC	CR/LFINF+CDL/HBET:4-7/COM	$1,988.1M	2,830	0.94%	0.09%
	CR/LFINF+CDM/H:2/RES	$1,910.7M	34,739	0.91%	1.05%
MUR	MUR+ST/LWAL+CDN/H:1/COM	$1,823.3M	32,230	0.87%	0.98%
MCF	MCF/LWAL+CDM/HBET:3-6/COM	$1,807.3M	2,636	0.86%	0.08%
RC	CR/LFINF+CDM/HBET:4-7/RES	$1,693.6M	2,412	0.80%	0.07%
MUR	MUR+CB/LWAL+CDN/H:1/COM	$1,519.4M	26,858	0.72%	0.82%
S	S/LFM+CDL/H:1/IND	$1,455.4M	6,175	0.69%	0.19%
RC	CR/LFINF+CDL/H:3/COM	$1,392.3M	4,834	0.66%	0.15%
S	S/LFM+CDM/H:1/IND	$1,239.8M	5,262	0.59%	0.16%
MUR	MUR+ST/LWAL+CDN/H:2/COM	$1,215.5M	10,743	0.58%	0.33%
OT	MATO/RES	$1,200.5M	49,110	0.57%	1.49%
RC	CR/LFINF+CDM/H:3/COM	$1,186.1M	4,117	0.56%	0.12%
MCF	MCF/LWAL+CDL/H:2/COM	$1,166.9M	7,736	0.55%	0.23%