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 Sh
apely 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(
```

```python
# Parameters
country = "Austria"
```

```
Exposure files:
  Exposure_Com_Austria.csv
  Exposure_Ind_Austria.csv
  Exposure_Res_Austria.csv
```

Sanity checks and formats

Exposure at National level

Summary by occupancy type

OCCUPANCY	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
Res	8,877.0K	2,191.3K	$813.0B	94.63%	65.61%
Ind	3,550.8K	30.1K	$119.9B	1.30%	9.68%
Com	3,550.8K	94.3K	$306.1B	4.07%	24.71%

Other metrics to consider

OCCUPANCY	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
Total	422.2M	$851.4B	182	$2,935
Res	353.2M	$650.4B	161	$2,302
Ind	21.5M	$48.0B	713	$5,589
Com	47.6M	$153.1B	505	$6,430

Exposure summary at Admin level 1

NAME_1	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
Vienna	$326.4B	193.3K	3,248.8K	26.34%	8.35%	20.33%
Lower Austria	$247.0B	613.5K	3,070.6K	19.93%	26.49%	19.22%
Upper Austria	$179.0B	403.2K	2,690.5K	14.45%	17.41%	16.84%
Styria	$160.9B	367.7K	2,302.0K	12.99%	15.88%	14.41%
Tyrol	$90.2B	189.7K	1,349.8K	7.28%	8.19%	8.45%
Carinthia	$76.1B	180.1K	1,062.1K	6.14%	7.78%	6.65%
Salzburg	$66.8B	138.2K	1,007.1K	5.39%	5.97%	6.30%
Burgenland	$47.9B	126.5K	542.9K	3.87%	5.46%	3.40%
Vorarlberg	$44.8B	103.4K	704.6K	3.62%	4.47%	4.41%

Exposure by simplified taxonomy

```
Adding `MACRO_TAXO` column
```

MACRO_TAXO	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
RC	$726.0B	432.3K	8,773.1K	58.59%	18.67%	54.91%
MUR	$398.6B	1,632.2K	4,883.4K	32.17%	70.48%	30.56%
S	$45.9B	11.7K	1,384.8K	3.71%	0.51%	8.67%
W	$45.0B	113.4K	661.3K	3.63%	4.90%	4.14%
MIX	$23.6B	126.1K	276.0K	1.90%	5.45%	1.73%

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/LFINF+CDN/HBET:3-5/RES	$202.7B	197,231	18.19%	9.27%
MUR	MUR+CL/LWAL+CDN/H:1/RES	$169.7B	761,538	15.23%	35.81%
	MUR+CL/LWAL+CDN/H:2/RES	$129.8B	831,159	11.65%	39.08%
RC	CR/LFINF+CDN/HBET:6-/RES	$100.5B	25,930	9.02%	1.22%
MUR	MUR+CL/LWAL+CDN/H:2/COM	$55.5B	21,995	4.98%	1.03%
RC	CR/LFINF+CDL+LFC:3.0/HBET:3-5/RES	$51.6B	49,750	4.63%	2.34%
MUR	MUR+CL/LWAL+CDN/H:1/COM	$35.8B	15,377	3.21%	0.72%
S	S/LFM+CDL/H:1/IND	$35.3B	9,030	3.17%	0.42%
	CR+PC/LFM+CDL/H:1/IND	$33.4B	8,127	3.00%	0.38%
	CR/LFINF+CDL+LFC:3.0/HBET:3-5/COM	$29.1B	7,659	2.61%	0.36%
	CR/LFINF+CDL/H:2/IND	$23.5B	5,719	2.11%	0.27%
	CR/LFINF+CDL+LFC:8.0/HBET:3-5/RES	$23.3B	23,779	2.09%	1.12%
RC	CR/LFINF+CDL+LFC:3.0/HBET:6-/RES	$21.9B	5,647	1.96%	0.27%
	CR/LFINF+CDN/HBET:3-5/COM	$17.9B	4,994	1.61%	0.23%
	CR+PC/LWAL+CDL+LFC:3.0/HBET:3-5/COM	$15.8B	4,212	1.42%	0.20%
	CR/LWAL+CDN/H:2/COM	$15.6B	5,017	1.40%	0.24%
	CR/LFINF+CDL+LFC:3.0/HBET:6-/COM	$11.8B	2,521	1.06%	0.12%
W	W/LWAL+CDN/HBET:3-5/RES	$11.5B	12,012	1.04%	0.56%
	CR+PC/LWAL+CDN/HBET:3-5/COM	$10.4B	2,517	0.93%	0.12%
	CR/LFINF+CDH/HBET:6-/COM	$8.6B	1,855	0.77%	0.09%
	CR/LFINF+CDN/HBET:6-/COM	$8.6B	1,855	0.77%	0.09%
RC	CR/LWAL+CDH/HBET:3-5/COM	$8.5B	1,969	0.76%	0.09%
	CR/LWAL+CDL+LFC:3.0/HBET:3-5/COM	$8.3B	1,819	0.74%	0.09%
	CR/LFINF+CDL+LFC:13.0/HBET:3-5/RES	$8.1B	8,283	0.73%	0.39%
MUR	MUR/LWAL+CDN/H:1/IND	$7.8B	2,107	0.70%	0.10%
RC	CR+PC/LWAL+CDL+LFC:3.0/HBET:6-/COM	$7.4B	1,643	0.67%	0.08%
W	W/LWAL+CDN/H:1/RES	$7.3B	31,633	0.65%	1.49%
S	S+SL/LFM+CDL/H:1/IND	$7.1B	1,806	0.63%	0.08%
MIX	MIX(MUR+W)/LWAL+CDN/H:1/RES	$6.6B	28,442	0.60%	1.34%
	CR/LFINF+CDL+LFC:9.0/HBET:3-5/RES	$6.6B	6,767	0.60%	0.32%
	CR/LWAL+CDN/HBET:6-/COM	$6.4B	1,643	0.57%	0.08%
RC	CR/LFINF+CDL+LFC:5.0/HBET:3-5/RES	$5.8B	5,942	0.52%	0.28%
	CR/LFINF+CDL+LFC:8.0/HBET:3-5/COM	$5.8B	1,594	0.52%	0.07%
	CR+PC/LWAL+CDN/HBET:6-/COM	$5.7B	1,479	0.51%	0.07%
	W/LWAL+CDL/H:1/IND	$5.6B	1,505	0.50%	0.07%
W	W/LWAL+CDN/H:2/RES	$5.2B	32,224	0.46%	1.52%