

# 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 = "Montenegro"
```

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

## Sanity checks and formats

## Exposure at National level

### Summary by occupancy type

	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
OCCUPANCY					
Res	622.0K	151,159	\$8,840.8M	91.64%	50.05%
Ind	244.0K	2,508	\$2,063.9M	1.52%	11.69%
Com	248.8K	11,274	\$6,758.2M	6.84%	38.26%

### Other metrics to consider

	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
OCCUPANCY				
Total	18,537.9K	\$11,277.4M	112	\$953
Res	14,130.6K	\$7,072.7M	93	\$626
Ind	1,117.7K	\$825.6M	446	\$1,847
Com	3,289.6K	\$3,379.1M	292	\$2,054

## Exposure summary at Admin level 1

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
NAME_1						
Podgorica	\$5,347.4M	40,401	335,752	30.27%	24.49%	30.12%
Niksic	\$1,733.1M	15,636	130,812	9.81%	9.48%	11.73%
Budva	\$1,592.0M	7,241	34,703	9.01%	4.39%	3.11%
Bar	\$1,471.0M	15,683	75,926	8.33%	9.51%	6.81%
Herceg Novi	\$1,210.2M	10,477	55,731	6.85%	6.35%	5.00%
BijeloPolje	\$968.9M	11,474	83,156	5.49%	6.96%	7.46%
Pljevlja	\$832.4M	8,810	55,590	4.71%	5.34%	4.99%
Kotor	\$757.0M	7,192	40,811	4.29%	4.36%	3.66%
Ulcinj	\$639.4M	6,424	35,972	3.62%	3.89%	3.23%
Berane	\$582.2M	8,974	61,341	3.30%	5.44%	5.50%
Cetinje	\$471.9M	5,025	30,077	2.67%	3.05%	2.70%
Tivat	\$452.5M	4,630	25,336	2.56%	2.81%	2.27%
Rozaje	\$307.9M	4,249	41,467	1.74%	2.58%	3.72%
Kolasin	\$300.4M	2,782	15,133	1.70%	1.69%	1.36%
Danilovgrad	\$298.9M	4,843	33,354	1.69%	2.94%	2.99%
Mojkovac	\$217.8M	2,483	15,569	1.23%	1.51%	1.40%
Plav	\$194.5M	3,354	23,669	1.10%	2.03%	2.12%
Zabljak	\$98.7M	1,222	5,012	0.56%	0.74%	0.45%
Andrijevica	\$83.4M	1,869	7,121	0.47%	1.13%	0.64%
Pluzine	\$58.1M	1,142	4,558	0.33%	0.69%	0.41%
Savnik	\$45.0M	1,030	3,738	0.25%	0.62%	0.34%

## Exposure by simplified taxonomy

Adding `MACRO\_TAXO` column

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
MACRO_TAXO						
RC	\$11,107.3M	47,272	648.6K	62.88%	28.66%	58.18%
MCF	\$3,476.7M	55,704	212.4K	19.68%	33.77%	19.05%
MUR	\$2,581.2M	61,338	192.8K	14.61%	37.19%	17.30%
S	\$497.8M	627	61.0K	2.82%	0.38%	5.47%

## 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+CDM+LFC:10.0/HBET:3-5/COM	\$1,349.8M	754	8.51%	0.48%
MUR	MUR/LWAL+CDN/H:1/RES	\$1,215.0M	38,125	7.66%	24.39%
RC	CR+PC/LFM+CDL/H:1/IND	\$899.0M	1,078	5.67%	0.69%
	CR/LFINF+CDM+LFC:5.0/HBET:3-5/COM	\$854.4M	497	5.39%	0.32%
MCF	MCF/LWAL+CDL/H:1/RES	\$695.1M	20,921	4.38%	13.38%
MUR	MUR/LWAL+CDN/H:2/RES	\$658.8M	21,001	4.15%	13.44%
	MUR/LWAL+CDN/H:1/COM	\$609.6M	2,029	3.84%	1.30%
MCF	MCF/LWAL+CDL/H:1/COM	\$593.3M	1,678	3.74%	1.07%
RC	CR/LFINF+CDM+LFC:5.0/H:1/COM	\$533.4M	1,465	3.36%	0.94%
MCF	MCF/LWAL+CDN/H:1/RES	\$497.2M	14,036	3.14%	8.98%
	CR/LFINF+CDL+LFC:15.0/HBET:3-5/RES	\$485.6M	638	3.06%	0.41%
	CR/LFINF+CDM+LFC:10.0/H:1/COM	\$480.4M	1,344	3.03%	0.86%
RC	CR/LFINF+CDM+LFC:5.0/HBET:3-5/RES	\$430.5M	550	2.71%	0.35%
	CR/LFINF+CDM+LFC:10.0/HBET:3-5/RES	\$387.5M	484	2.44%	0.31%
	CR/LFINF+CDM+LFC:2.5/HBET:3-5/COM	\$377.9M	212	2.38%	0.14%
	CR/LFINF+CDL+LFC:0.0/HBET:3-5/RES	\$369.9M	494	2.33%	0.32%
MCF	MCF/LWAL+CDL/H:2/RES	\$353.9M	10,387	2.23%	6.65%
	MCF/LWAL+CDN/H:1/COM	\$323.6M	926	2.04%	0.59%
	CR/LFINF+CDL+LFC:15.0/H:2/RES	\$299.0M	8,368	1.89%	5.35%
	CR/LWAL+CDM/H:2/IND	\$292.7M	351	1.85%	0.22%
	CR/LFINF+CDM+LFC:2.5/H:1/COM	\$280.8M	760	1.77%	0.49%
RC	CR/LFINF+CDM+LFC:2.5/HBET:3-5/RES	\$264.2M	369	1.67%	0.24%
	CR/LFINF+CDN/HBET:3-5/RES	\$260.1M	366	1.64%	0.23%
	CR/LFINF+CDL+LFC:0.0/H:2/RES	\$252.0M	7,277	1.59%	4.66%
	CR/LFINF+CDM+LFC:10.0/H:2/COM	\$247.2M	369	1.56%	0.24%
MCF	MCF/LWAL+CDN/H:2/RES	\$243.3M	6,733	1.53%	4.31%
RC	CR/LFINF+CDM+LFC:5.0/H:2/RES	\$224.7M	5,429	1.42%	3.47%
S	S/LFBR+CDM/H:1/IND	\$219.1M	276	1.38%	0.18%
RC	CR/LFINF+CDM+LFC:5.0/H:2/COM	\$217.3M	318	1.37%	0.20%
MCF	MCF/LWAL+CDL/HBET:3-5/RES	\$216.4M	276	1.36%	0.18%
	CR/LFINF+CDL+LFC:15.0/HBET:6-/RES	\$211.5M	157	1.33%	0.10%
	CR/LFINF+CDM+LFC:10.0/HBET:6-/COM	\$193.7M	92	1.22%	0.06%
	CR/LFINF+CDM+LFC:10.0/H:2/RES	\$188.8M	4,361	1.19%	2.79%
RC	CR/LDUAL+CDM+LFC:5.0/HBET:6-/RES	\$186.4M	139	1.18%	0.09%
	CR/LFM+CDM/H:1/IND	\$146.4M	176	0.92%	0.11%
	CR/LFINF+CDL+LFC:0.0/HBET:6-/RES	\$145.1M	105	0.91%	0.07%
	CR/LDUAL+CDM+LFC:10.0/HBET:6-/RES	\$141.5M	96	0.89%	0.06%
MCF	MCF/LWAL+CDN/HBET:3-5/RES	\$135.7M	163	0.86%	0.10%
	CR/LFINF+CDM+LFC:2.5/H:2/RES	\$127.7M	3,291	0.80%	2.11%
RC	CR/LFINF+CDL/H:2/IND	\$125.4M	150	0.79%	0.10%
	CR/LFINF+CDM+LFC:5.0/HBET:6-/COM	\$123.4M	61	0.78%	0.04%