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 = "Serbia"
```

```
Exposure files:
  Exposure_Com_Serbia.csv
  Exposure_Ind_Serbia.csv
  Exposure_Res_Serbia.csv
```

Sanity checks and formats

Exposure at National level

Summary by occupancy type

OCCUPANCY	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
Res	6,945.0K	2,273.0K	$158.7B	97.10%	61.08%
Ind	2,400.7K	24.0K	$43.7B	1.03%	16.81%
Com	2,778.0K	43.9K	$57.4B	1.87%	22.11%

Other metrics to consider

OCCUPANCY	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
Total	216.4M	$173.1B	92	$1,200
Res	184.1M	$126.9B	81	$862
Ind	14.8M	$17.5B	616	$2,955
Com	17.6M	$28.7B	401	$3,270

Exposure summary at Admin level 1

NAME_1	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
Grad Beograd	$82,430.7M	364.7K	2,846.3K	31.73%	15.58%	23.48%
Juzno-Backi	$26,513.6M	178.9K	1,067.0K	10.21%	7.64%	8.80%
Juzno-Banatski	$12,911.5M	103.8K	510.9K	4.97%	4.44%	4.21%
Nisavski	$11,725.1M	119.3K	640.7K	4.51%	5.10%	5.28%
Sremski	$10,667.0M	117.0K	543.2K	4.11%	5.00%	4.48%
Sumadijski	$8,962.4M	102.8K	492.7K	3.45%	4.39%	4.06%
Zlatiborski	$7,485.1M	103.1K	449.0K	2.88%	4.40%	3.70%
Severno-Backi	$7,413.8M	68.8K	325.1K	2.85%	2.94%	2.68%
Zapadno-Backi	$7,371.6M	69.2K	327.2K	2.84%	2.96%	2.70%
Raski	$7,343.3M	93.6K	476.4K	2.83%	4.00%	3.93%
Macvanski	$7,220.3M	110.7K	490.3K	2.78%	4.73%	4.04%
Pomoravski	$6,116.7M	79.0K	368.9K	2.35%	3.38%	3.04%
Srednje-Banatski	$6,094.4M	71.6K	326.4K	2.35%	3.06%	2.69%
Moravicki	$6,037.9M	76.9K	349.4K	2.32%	3.29%	2.88%
Rasinski	$5,845.2M	79.3K	404.0K	2.25%	3.39%	3.33%
Severno-Banatski	$5,721.9M	60.0K	257.0K	2.20%	2.56%	2.12%
Kolubarski	$5,500.5M	71.1K	292.7K	2.12%	3.04%	2.41%
Branicevski	$5,288.2M	76.2K	288.0K	2.04%	3.25%	2.38%
Jablanicki	$5,220.3M	74.5K	359.9K	2.01%	3.18%	2.97%
Podunavski	$5,062.1M	69.2K	331.0K	1.95%	2.96%	2.73%
Borski	$4,826.8M	49.7K	209.4K	1.86%	2.13%	1.73%
Pcinjski	$4,723.7M	61.0K	271.6K	1.82%	2.61%	2.24%
Zajecarski	$3,453.2M	52.3K	197.5K	1.33%	2.23%	1.63%
Pirotski	$3,226.1M	45.8K	151.4K	1.24%	1.95%	1.25%
Toplicki	$2,606.4M	42.1K	147.6K	1.00%	1.80%	1.22%

Exposure by simplified taxonomy

```
Adding `MACRO_TAXO` column
```

MACRO_TAXO	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
RC	$124.8B	71.4K	5,399.7K	48.05%	3.05%	44.54%
MUR	$73.7B	1,310.9K	3,675.8K	28.38%	56.00%	30.32%
MCF	$32.9B	499.5K	1,498.4K	12.68%	21.34%	12.36%
S	$10.5B	6.0K	600.2K	4.05%	0.26%	4.95%
ADO/E	$9.7B	244.9K	514.9K	3.73%	10.46%	4.25%
W	$8.1B	208.1K	434.8K	3.10%	8.89%	3.59%

Exposure by taxonomy

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

MACRO_TAXO	TAXONOMY	COST_USD	BUILDINGS	COST_USD_%	BUILDIN
MUR	MUR+CLBRS/LWAL+CDN/HBET:1-3/BPD/RSH3+RMT1+RWO/FM/RES	$23,162.9M	515,995	9.92%	2
RC	CR+PC/LFM+CDL/H:1/IND	$19,016.5M	10,322	8.14%	0
MUR	MUR+CLBLH/LWAL+CDL/HBET:1-2/BPD/RSH3+RMT1+RWO/FM/RES	$18,711.6M	439,139	8.01%	1
MCF	MCF+CLBLH/LWAL+CDL/HBET:1-3/BPD/RSH3+RMT1+RWO/FC/RES	$15,506.8M	304,512	6.64%	1
RC	CR/LFINF+CDM+LFC:2.5/HBET:3-5/COM	$12,636.3M	2,819	5.41%	0
ADO/E	EU+ETR/LWAL+CDN/H:1/BPD/RSH3+RMT1+RWO/RES	$9,683.5M	244,787	4.15%	1
MCF	MCF+CLBLH/LWAL+CDM/HBET:1-3/BPD/RSH3+RMT1+RWO/FC/RES	$9,018.7M	186,719	3.86%	0
MUR	MUR+CLBRS/LWAL+CDN/HBET:1-2/BPD/RSH3+RMT1+RWO/FW/RES	$8,533.8M	200,442	3.65%	0
RC	CR+CIP/LDUAL+CDM+LFC:2.5/HBET:4-7/RSH1/FC/RES	$8,274.8M	4,077	3.54%	0
W	W+WLI/LWAL+CDN/H:1/BPD/EWE/RSH3+RMT1/RES	$8,058.6M	208,010	3.45%	1
RC	CR/LFINF+CDM+LFC:2.5/H:1/COM	$7,725.6M	12,271	3.31%	0
MUR	MUR+CLBRS/LWAL+CDN/HBET:2-5/BPD/RSH3+RMT1+RWO/FC/RES	$7,685.8M	17,878	3.29%	0
	CR/LFINF+CDM+LFC:2.5/H:2/COM	$7,452.9M	4,573	3.19%	0
RC	CR/LWAL+CDL/H:2/IND	$6,191.4M	3,361	2.65%	0
	CR+CIP/LFINF+CDM+LFC:2.5/HBET:4-7/BPD/EWMA/RSH1/FC/RES	$5,402.6M	2,667	2.31%	0
MUR	MUR+CLBRS/LWAL+CDN/H:1/BPD/RSH2+RMT1+RWO/RES	$5,276.3M	121,964	2.26%	5
RC	CR+PC/LWAL+CDN/HBET:5-10/RSH1/FC/RES	$4,968.7M	2,692	2.13%	0
S	S/LFBR+CDM/H:1/IND	$4,633.0M	2,640	1.98%	0
	CR+CIP/LFINF+CDN/HBET:4-7/BPD/EWMA/RSH1/FC/RES	$4,356.3M	2,208	1.87%	0
RC	CR+PC/LWAL+CDM+LFC:2.5/HBET:5-10/RSH1/FC/RES	$4,278.4M	2,276	1.83%	0
	CR/LFINF+CDM+LFC:5.0/HBET:3-5/COM	$3,930.8M	890	1.68%	0
MUR	MUR+CLBRS/LWAL+CDN/HBET:1-3/BPD/RSH3+RMT1+RWO/FC/RES	$3,884.9M	6,119	1.66%	0
RC	CR/LFM+CDL/H:2/IND	$3,095.7M	1,680	1.33%	0
MUR	MUR/LWAL+CDN/H:1/COM	$3,008.6M	5,329	1.29%	0
	MUR/LWAL+CDN/H:2/COM	$2,999.0M	2,638	1.28%	0
	CR+CIP/LDUAL+CDM+LFC:5.0/HBET:4-7/RSH1/FC/RES	$2,831.4M	1,569	1.21%	0
RC	CR+PC/LWAL+CDL+LFC:3.75/HBET:5-10/RSH1/FC/RES	$2,695.2M	1,397	1.15%	0
	CR/LFINF+CDL/H:1/IND	$2,653.5M	1,440	1.14%	0
S	S/LFM+CDL/H:1/IND	$2,527.1M	1,440	1.08%	0
RC	CR+CIP/LFINF+CDL-LFC:3.75/HBET:4-7/BPD/EWMA/RSH1/FC/RES	$2,310.2M	1,118	0.99%	0
	CR+CIP/LDUAL+CDM/HBET:4-7/RSH1/FC/RES	$2,287.9M	1,156	0.98%	0
MCF	MCF/LWAL+CDL/H:2/COM	$2,182.3M	1,482	0.93%	0
RC	CR/LFINF+CDM+LFC:5.0/H:2/COM	$2,181.4M	1,320	0.93%	0
	CR/LFINF+CDM+LFC:5.0/H:1/COM	$2,149.8M	3,432	0.92%	0
MCF	MCF/LWAL+CDL/H:1/COM	$2,124.1M	3,084	0.91%	0
S	S/LFBR+CDM/HBET:3-5/IND	$2,105.9M	1,200	0.90%	0