

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 = "Ecuador"
```

Exposure files:
Exposure_Com_Ecuador.csv
Exposure_Ind_Ecuador.csv
Exposure_Res_Ecuador.csv

Sanity checks and formats

Exposure at National level

Summary by occupancy type

	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
OCCUPANCY					
Res	17.9M	4,063.8K	\$353.7B	90.24%	77.99%
Ind	0.0M	104.4K	\$36.4B	2.32%	8.03%
Com	0.0M	335.2K	\$63.4B	7.44%	13.99%

Other metrics to consider

	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
OCCUPANCY				
Total	553.2M	\$327.9B	123	\$820
Res	385.9M	\$266.6B	95	\$917
Ind	32.6M	\$19.5B	312	\$1,117
Com	134.8M	\$41.8B	402	\$471

Exposure summary at Admin level 1

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
NAME_1						
GUAYAS	\$114,579.0M	1,085.5K	4,502.2K	25.26%	24.10%	25.17%
PICHINCHA	\$101,466.2M	771.4K	3,181.7K	22.37%	17.13%	17.79%
MANABI	\$37,471.8M	425.4K	1,691.7K	8.26%	9.45%	9.46%
AZUAY	\$22,841.1M	231.9K	879.5K	5.04%	5.15%	4.92%
LOS RIOS	\$20,306.2M	248.0K	961.0K	4.48%	5.51%	5.37%
EL ORO	\$19,831.4M	196.9K	741.8K	4.37%	4.37%	4.15%
TUNGURAHUA	\$16,760.0M	176.2K	623.2K	3.70%	3.91%	3.48%
CHIMBORAZO	\$13,321.6M	156.3K	566.3K	2.94%	3.47%	3.17%
LOJA	\$13,231.8M	142.5K	554.5K	2.92%	3.17%	3.10%
ESMERALDAS	\$13,049.4M	160.4K	659.6K	2.88%	3.56%	3.69%
IMBABURA	\$12,152.2M	129.0K	491.8K	2.68%	2.86%	2.75%
SANTO DOMINGO	\$11,724.8M	114.9K	454.5K	2.59%	2.55%	2.54%
COTOPAXI	\$11,107.6M	133.5K	505.4K	2.45%	2.96%	2.83%
SANTA ELENA	\$7,572.4M	93.5K	381.2K	1.67%	2.08%	2.13%
CAÑAR	\$6,852.3M	75.4K	278.1K	1.51%	1.68%	1.55%
BOLIVAR	\$5,094.7M	63.0K	226.8K	1.12%	1.40%	1.27%
CARCHI	\$4,906.9M	55.7K	203.2K	1.08%	1.24%	1.14%
SUCUMBIOS	\$4,746.4M	56.1K	217.9K	1.05%	1.25%	1.22%
MORONA SANTIAGO	\$3,591.6M	42.8K	182.7K	0.79%	0.95%	1.02%
ORELLANA	\$3,530.5M	41.9K	168.4K	0.78%	0.93%	0.94%
NAPO	\$2,697.7M	30.1K	128.1K	0.59%	0.67%	0.72%
ZAMORA CHINCHIPE	\$2,593.2M	28.4K	112.8K	0.57%	0.63%	0.63%
PASTAZA	\$2,439.7M	25.6K	103.7K	0.54%	0.57%	0.58%
GALAPAGOS	\$1,094.6M	9.0K	31.0K	0.24%	0.20%	0.17%
ZONAS NO DELIMITADAS	\$574.3M	9.8K	40.0K	0.13%	0.22%	0.22%

Exposure by simplified taxonomy

Adding `MACRO_TAXO` column

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
MACRO_TAXO						
MCF	\$193,414.6M	1,264.6K	5,647.5K	42.65%	28.08%	31.57%
MUR	\$99,850.9M	1,937.3K	7,218.9K	22.02%	43.02%	40.36%
RC	\$88,561.9M	235.8K	1,026.1K	19.53%	5.24%	5.74%
W	\$51,514.4M	829.0K	3,286.9K	11.36%	18.41%	18.38%
S	\$10,754.9M	49.9K	0.0K	2.37%	1.11%	0.00%
ADO/E	\$8,573.9M	172.0K	647.2K	1.89%	3.82%	3.62%
OT	\$866.6M	14.7K	60.6K	0.19%	0.33%	0.34%

Exposure by taxonomy

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

		COST_USD	BUILDINGS	COST_USD_%	BUILDINGS_%
MACRO_TAXO	TAXONOMY				
MUR	MUR/LWAL+DNO/H:1/RES	\$70,605.1M	1,369,312	17.34%	32.83%
	MCF/LWAL+DNO/H:1/RES	\$67,002.1M	628,145	16.46%	15.06%
MCF	MCF/LWAL+DNO/H:2/RES	\$45,819.1M	214,777	11.25%	5.15%
	MCF/LWAL+DUH/H:1/RES	\$20,419.0M	127,619	5.01%	3.06%
	MCF/LWAL+DUH/H:2/RES	\$18,989.4M	59,342	4.66%	1.42%
MUR	MUR/LWAL+DNO/H:2/RES	\$17,558.8M	454,047	4.31%	10.88%
	W+WWD/LWAL+DNO/H:1/RES	\$16,298.9M	256,831	4.00%	6.16%
W	W+WO/LN+DNO/H:1/RES	\$16,066.5M	253,169	3.95%	6.07%
	W+WBB/LWAL+DNO/H:1/RES	\$15,860.2M	249,919	3.90%	5.99%
MCF	MCF/LWAL+DNO/H:3/RES	\$11,870.4M	74,190	2.92%	1.78%
RC	CR/LFINF+DNO/HBET:1-3/IND3	\$9,233.3M	22,000	2.27%	0.53%
ADO/E	MUR+ADO/LWAL+DNO/H:1/RES	\$7,691.3M	149,164	1.89%	3.58%
RC	CR/LFINF+DNO/H:3/RES	\$7,500.0M	25,000	1.84%	0.60%
MCF	MCF/LWAL+DUH/H:3/RES	\$7,436.2M	30,984	1.83%	0.74%
	CR/LFINF+DUH/HBET:4-6/RES	\$6,421.8M	3,058	1.58%	0.07%
	CR/LFINF+DUH/H:3/RES	\$6,388.2M	14,196	1.57%	0.34%
	CR/LFINF+DNO/HBET:4-6/RES	\$5,586.0M	3,990	1.37%	0.10%
	CR/LFINF+DUL/HBET:1-3/COM5	\$4,843.8M	18,692	1.19%	0.45%
	CR/LFINF+DUL/HBET:4-6/COM5	\$4,521.8M	6,107	1.11%	0.15%
RC	CR/LFINF+DNO/HBET:4-6/COM5	\$4,411.2M	5,958	1.08%	0.14%
	CR/LFINF+DNO/HBET:1-3/COM2	\$4,028.9M	9,501	0.99%	0.23%
	CR/LFINF+DUH/HBET:7-RES	\$3,710.4M	773	0.91%	0.02%
	CR/LWAL+DUL/HBET:7-10/COM5	\$3,695.3M	3,119	0.91%	0.07%
	CR/LFINF+DNO/HBET:1-3/IND4	\$3,607.7M	8,596	0.89%	0.21%
	CR+PC/LFM+DUL/H:1/IND3	\$3,464.5M	14,446	0.85%	0.35%
MCF	MCF/LWAL+DNO/H:2/COM2	\$3,426.3M	7,614	0.84%	0.18%
MUR	MUR/LWAL+DNO/H:3/RES	\$3,174.0M	41,038	0.78%	0.98%
RC	CR/LFINF+DUL/HBET:1-3/IND3	\$2,983.2M	7,108	0.73%	0.17%
S	SL/LFM+DUL/H:1/COM2	\$2,981.0M	11,356	0.73%	0.27%
MCF	MCF/LWAL+DUL/H:2/IND3	\$2,941.1M	7,358	0.72%	0.18%
W	W+WO/LN+DNO/H:2/RES	\$2,939.5M	61,759	0.72%	1.48%
MCF	MCF/LWAL+DNO/H:2/IND3	\$2,933.9M	7,340	0.72%	0.18%
RC	CR/LFINF+DNO/HBET:1-3/COM1	\$2,760.3M	24,854	0.68%	0.60%