

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 = "Peru"
```

Exposure files:
Exposure_Com_Peru.csv
Exposure_Ind_Peru.csv
Exposure_Res_Peru.csv

Sanity checks and formats

Exposure at National level

Summary by occupancy type

	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
OCCUPANCY					
Res	33.4M	8,015.2K	\$631.9B	95.13%	82.79%
Ind	0.0M	162.9K	\$44.4B	1.93%	5.82%
Com	0.0M	247.5K	\$86.9B	2.94%	11.39%

Other metrics to consider

	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
OCCUPANCY				
Total	905.9M	\$556.7B	108	\$842
Res	770.0M	\$475.1B	96	\$821
Ind	48.6M	\$24.1B	299	\$913
Com	87.3M	\$57.5B	353	\$995

Exposure summary at Admin level 1

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
NAME_1						
Lima	\$336,708.1M	2,617.2K	11,438.5K	44.12%	31.06%	34.29%
Arequipa	\$42,896.4M	438.2K	1,643.7K	5.62%	5.20%	4.93%
La Libertad	\$38,161.2M	475.9K	1,945.3K	5.00%	5.65%	5.83%
Piura	\$37,128.2M	525.3K	2,083.0K	4.86%	6.23%	6.24%
Prov. Constitucional del Callao	\$29,169.9M	272.2K	1,203.7K	3.82%	3.23%	3.61%
Junin	\$26,556.6M	361.3K	1,396.1K	3.48%	4.29%	4.18%
Lambayeque	\$26,301.2M	315.8K	1,336.4K	3.45%	3.75%	4.01%
Puno	\$24,791.0M	405.8K	1,206.2K	3.25%	4.82%	3.62%
Cajamarca	\$21,646.4M	380.4K	1,338.1K	2.84%	4.51%	4.01%
Ancash	\$21,553.5M	314.1K	1,153.1K	2.82%	3.73%	3.46%
Cusco	\$21,222.0M	335.6K	1,230.1K	2.78%	3.98%	3.69%
Ica	\$21,216.3M	252.1K	1,004.4K	2.78%	2.99%	3.01%
San Martin	\$17,944.6M	252.8K	967.3K	2.35%	3.00%	2.90%
Loreto	\$14,597.8M	234.5K	1,038.9K	1.91%	2.78%	3.11%
Huanuco	\$12,683.2M	200.6K	743.3K	1.66%	2.38%	2.23%
Tacna	\$11,730.8M	117.7K	381.4K	1.54%	1.40%	1.14%
Ayacucho	\$11,124.4M	182.0K	627.9K	1.46%	2.16%	1.88%
Ucayali	\$10,008.2M	150.1K	596.7K	1.31%	1.78%	1.79%
Apurimac	\$6,768.6M	120.3K	390.8K	0.89%	1.43%	1.17%
Amazonas	\$6,396.5M	115.2K	406.7K	0.84%	1.37%	1.22%
Tumbes	\$5,816.3M	73.4K	267.2K	0.76%	0.87%	0.80%
Moquegua	\$5,342.9M	63.2K	200.1K	0.70%	0.75%	0.60%
Huancavelica	\$4,999.1M	100.4K	322.0K	0.66%	1.19%	0.97%
Pasco	\$4,933.0M	73.1K	272.5K	0.65%	0.87%	0.82%
Madre de Dios	\$3,509.1M	48.1K	166.2K	0.46%	0.57%	0.50%

Exposure by simplified taxonomy

Adding `MACRO_TAXO` column						
	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
MACRO_TAXO						
MCF	\$396,808.7M	2,659.0K	12,506.8K	51.99%	31.56%	37.49%
RC	\$100,136.3M	233.0K	1,481.6K	13.12%	2.77%	4.44%
W	\$84,790.2M	1,656.5K	6,048.0K	11.11%	19.66%	18.13%
ADO/E	\$80,617.2M	1,956.9K	6,437.1K	10.56%	23.23%	19.30%
MUR	\$79,627.1M	1,833.2K	6,853.6K	10.43%	21.76%	20.54%
S	\$20,790.1M	78.0K	0.0K	2.72%	0.93%	0.00%
OT	\$435.7M	9.0K	32.7K	0.06%	0.11%	0.10%

Exposure by taxonomy

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

		COST_USD	BUILDINGS	COST_USD_%	BUILDINGS_%
MACRO_TAXO	TAXONOMY				
MCF	MCF/LWAL+DUH/H:1/RES	\$89,220.8M	619,589	13.03%	7.70%
	MCF/LWAL+DNO/H:1/RES	\$82,370.7M	980,604	12.03%	12.18%
ADO/E	MUR+ADO/LWAL+DNO/H:1/RES	\$74,793.8M	1,772,890	10.92%	22.02%
MCF	MCF/LWAL+DUH/H:2/RES	\$71,893.7M	249,631	10.50%	3.10%
	MCF/LWAL+DNO/H:2/RES	\$60,485.4M	360,032	8.83%	4.47%
MUR	MUR/LWAL+DNO/H:1/RES	\$49,011.7M	1,161,758	7.16%	14.43%
W	W+WO/LN+DNO/H:1/RES	\$45,936.6M	884,704	6.71%	10.99%
MCF	MCF/LWAL+DUH/H:3/RES	\$25,181.3M	116,580	3.68%	1.45%
	MCF/LWAL+DNO/H:3/RES	\$21,299.2M	169,041	3.11%	2.10%
W	W+WWD/LWAL+DNO/H:1/RES	\$19,046.8M	366,828	2.78%	4.56%
	W+WBB/LWAL+DNO/H:1/RES	\$16,152.0M	311,075	2.36%	3.86%
MUR	MUR/LWAL+DNO/H:2/RES	\$12,715.8M	401,881	1.86%	4.99%
	CR/LFINF+DUH/HBET:7-/RES	\$9,806.4M	2,270	1.43%	0.03%
	CR/LFINF+DNO/H:3/RES	\$8,997.1M	38,083	1.31%	0.47%
RC	CR/LFINF+DUH/HBET:4-6/RES	\$8,300.9M	4,392	1.21%	0.05%
	CR/LFINF+DNO/HBET:1-3/IND3	\$8,079.5M	23,311	1.18%	0.29%
MCF	CR/LFINF+DUH/H:3/RES	\$7,697.0M	19,005	1.12%	0.24%
	MCF/LWAL+DNO/H:2/IND3	\$7,424.5M	22,492	1.08%	0.28%
	MCF/LWAL+DNO/H:2/COM2	\$7,395.2M	15,928	1.08%	0.20%
	MCF/LWAL+DNO/H:2/COM01	\$6,944.8M	14,958	1.01%	0.19%
RC	CR/LFINF+DNO/HBET:1-3/COM01	\$6,471.3M	14,792	0.95%	0.18%
	CR/LFINF+DNO/HBET:1-3/COM2	\$6,271.3M	14,334	0.92%	0.18%
MUR	MUR+ST/LWAL+DNO/H:1/RES	\$6,232.6M	147,735	0.91%	1.84%
S	SL/LFM+DUL/H:1/COM2	\$6,135.7M	22,655	0.90%	0.28%
MCF	MCF/LWAL+DNO/H:2/COM02	\$5,954.9M	23,819	0.87%	0.30%
ADO/E	MUR+ADO/LWAL+DNO/H:2/RES	\$5,823.4M	184,049	0.85%	2.29%
MUR	MUR/LWAL+DNO/H:3/RES	\$5,677.3M	89,716	0.83%	1.11%
RC	CR/LFINF+DNO/HBET:4-6/RES	\$4,841.1M	4,391	0.71%	0.05%
	CR/LFINF+DNO/HBET:1-3/IND4	\$4,520.3M	13,042	0.66%	0.16%