

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 = "Dominican Republic"
```

Exposure files:
Exposure_Com_Dominican_Republic.csv
Exposure_Ind_Dominican_Republic.csv
Exposure_Res_Dominican_Republic.csv

Sanity checks and formats

Dominican Republic
Exposure/Exposure/Exposure_Com_Dominican_Republic.csv
Exposure/Exposure/Exposure_Ind_Dominican_Republic.csv
Exposure/Exposure/Exposure_Res_Dominican_Republic.csv
Occupants / Dwellings = 3.5
Reference avg household size (2019) = 3.34
Population (exposure / UN_2021) = 0.86
Exposure models OK

Exposure at National level

Summary by occupancy type

	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
OCCUPANCY					
Res	9.4M	2,239.2K	\$194.7B	94.87%	75.37%
Ind	0.0M	39.6K	\$27.0B	1.68%	10.46%
Com	0.0M	81.4K	\$36.6B	3.45%	14.17%

Other metrics to consider

	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
OCCUPANCY				
Total	332.6M	\$188.4B	141	\$777
Res	270.5M	\$149.7B	121	\$720
Ind	27.3M	\$15.2B	690	\$989
Com	34.7M	\$23.5B	426	\$1,056

Exposure summary at Admin level 1

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
NAME_1						
SANTO DOMINGO	\$55,728.4M	468.6K	2,010.8K	21.57%	19.86%	21.30%
DISTRITO NACIONAL	\$50,104.7M	223.5K	965.0K	19.39%	9.47%	10.22%
SANTIAGO	\$30,946.3M	250.3K	963.1K	11.98%	10.60%	10.20%
SAN CRISTÓBAL	\$20,229.8M	218.1K	933.1K	7.83%	9.24%	9.88%
LA VEGA	\$9,488.4M	103.8K	394.1K	3.67%	4.40%	4.17%
PUERTO PLATA	\$8,443.2M	91.1K	321.4K	3.27%	3.86%	3.40%
LA ALTAGRACIA	\$8,094.8M	77.1K	273.1K	3.13%	3.27%	2.89%
DUARTE	\$7,512.3M	76.5K	289.3K	2.91%	3.24%	3.06%
SAN PEDRO DE MACORIS	\$7,008.0M	74.3K	290.3K	2.71%	3.15%	3.07%
LA ROMANA	\$6,587.4M	60.0K	245.4K	2.55%	2.54%	2.60%
ESPAILLAT	\$5,358.1M	60.8K	231.9K	2.07%	2.58%	2.46%
MONSEÑOR NOUEL	\$4,317.3M	42.2K	165.1K	1.67%	1.79%	1.75%
SAN JUAN	\$4,234.3M	58.7K	232.3K	1.64%	2.49%	2.46%
AZUA	\$4,201.7M	49.6K	214.3K	1.63%	2.10%	2.27%
PERAVIA	\$4,053.0M	45.8K	184.2K	1.57%	1.94%	1.95%
VALVERDE	\$3,606.0M	45.5K	163.0K	1.40%	1.93%	1.73%
MARÍA TRINIDAD SÁNCHEZ	\$3,246.1M	38.6K	140.8K	1.26%	1.63%	1.49%
SANCHEZ RAMÍREZ	\$3,214.3M	39.1K	151.3K	1.24%	1.66%	1.60%
BARAHONA	\$3,067.8M	45.3K	186.9K	1.19%	1.92%	1.98%
MONTE PLATA	\$2,576.7M	50.0K	185.9K	1.00%	2.12%	1.97%
MONTE CRISTI	\$2,202.9M	33.6K	109.5K	0.85%	1.42%	1.16%
SAMANÁ	\$2,137.8M	28.2K	101.5K	0.83%	1.19%	1.07%
HERMANAS MIRABAL	\$2,003.7M	25.7K	92.1K	0.78%	1.09%	0.98%
HATO MAYOR	\$1,735.6M	22.8K	85.0K	0.67%	0.97%	0.90%
BAORUCO	\$1,453.8M	22.9K	97.3K	0.56%	0.97%	1.03%
EL SEIBO	\$1,427.0M	24.5K	87.6K	0.55%	1.04%	0.93%
DAJABÓN	\$1,163.1M	17.6K	63.9K	0.45%	0.75%	0.68%
SAN JOSÉ DE OCOA	\$1,154.1M	16.7K	59.5K	0.45%	0.71%	0.63%
SANTIAGO RODRÍGUEZ	\$1,074.7M	15.8K	57.4K	0.42%	0.67%	0.61%
INDEPENDENCIA	\$799.0M	12.2K	52.5K	0.31%	0.52%	0.56%
ELÍAS PIÑA	\$782.1M	14.8K	62.9K	0.30%	0.63%	0.67%
PEDERNALES	\$429.2M	6.7K	31.5K	0.17%	0.28%	0.33%

Exposure by simplified taxonomy

Adding `MACRO_TAXO` column

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
MACRO_TAXO						
RC	\$68,217.7M	330.0K	2,047.0K	26.40%	13.98%	21.68%
MR	\$66,205.3M	455.0K	1,978.8K	25.62%	19.28%	20.96%
MCF	\$60,422.6M	284.1K	1,021.0K	23.39%	12.04%	10.81%
S	\$31,115.7M	59.8K	0.0K	12.04%	2.54%	0.00%
W	\$15,666.0M	613.3K	2,193.5K	6.06%	25.99%	23.23%
MUR	\$15,000.6M	541.2K	1,929.5K	5.81%	22.93%	20.44%
OT	\$1,753.7M	76.7K	272.1K	0.68%	3.25%	2.88%

Exposure by taxonomy

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

MACRO_TAXO	TAXONOMY	COST_USD	BUILDINGS	COST_USD_%	BUILDINGS_%
MR	MR/LWAL+CDL+DUL/HEX:2/RES	\$25,868.1M	165,398	11.18%	7.70%
RC	CR/LFINF+CDH+DUH/HEX:2/RES	\$18,384.8M	55,653	7.94%	2.59%
MR	MR/LWAL+CDH+DUH/HEX:2/RES	\$12,148.5M	36,775	5.25%	1.71%
MCF	MCF/LWAL+CDL+DUL/HEX:2/RES	\$11,669.6M	74,614	5.04%	3.47%
RC	CR/LFINF+CDH+DUH/HEX:3/RES	\$10,012.0M	27,141	4.33%	1.26%
MCF	MCF/LWAL+CDL+DUL/HEX:1/RES	\$8,701.0M	100,140	3.76%	4.66%
MUR	MUR/LWAL+DNO/HEX:2/RES	\$7,886.8M	229,988	3.41%	10.71%
MR	MR/LWAL+CDL+DUL/HEX:3/RES	\$7,640.6M	43,749	3.30%	2.04%
MR	MR/LWAL+CDL+DUL/HEX:1/RES	\$7,472.3M	156,888	3.23%	7.31%
MUR	MUR/LWAL+DNO/HEX:1/RES	\$7,113.9M	311,173	3.07%	14.49%
MR	MR/LWAL+CDH+DUH/HEX:3/RES	\$6,948.0M	18,835	3.00%	0.88%
MCF	MCF/LWAL+CDL+DUL/HEX:2/COM	\$6,308.9M	11,641	2.73%	0.54%
MR	MR/LWAL+CDH+DUH/HEX:1/RES	\$6,127.8M	33,389	2.65%	1.55%
MCF	MCF/LWAL+CDL+DUL/HEX:2/IND	\$5,725.9M	3,637	2.47%	0.17%
W	W+WS/LPB+CDL+DUL/HEX:1/RES	\$5,350.9M	234,059	2.31%	10.90%
S	S+SR/LFM+CDL+DUL/HEX:1/IND	\$5,250.9M	11,027	2.27%	0.51%
MCF	MCF/LWAL+CDH+DUH/HEX:2/RES	\$4,799.6M	14,529	2.07%	0.68%
RC	CR/LDUAL+CDH+DUH/HEX:12/RES	\$4,219.6M	479	1.82%	0.02%
RC	CR/LDUAL+CDH+DUH/HBET:12,24/RES	\$4,217.4M	383	1.82%	0.02%
S	S+SR/LFM+CDL+DUL/HEX:1/COM	\$4,117.6M	13,003	1.78%	0.61%
W	W+WLI/LWAL+CDL+DUL/HEX:1/RES	\$3,909.2M	170,996	1.69%	7.96%
RC	CR/LFINF+CDH+DUH/HEX:4/RES	\$3,701.7M	2,017	1.60%	0.09%
RC	CR/LFINF+CDH+DUH/HEX:5/RES	\$3,688.9M	1,608	1.59%	0.07%
MCF	MCF/LWAL+CDH+DUH/HEX:1/RES	\$3,675.7M	20,028	1.59%	0.93%
S	S+SR/LFBR+CDL+DUL/HBET:12,24/COM	\$3,657.3M	541	1.58%	0.03%
MCF	MCF/LWAL+CDL+DUL/HEX:3/RES	\$3,656.7M	20,938	1.58%	0.98%
RC	CR/LFINF+CDH+DUH/HEX:6/RES	\$3,584.3M	1,302	1.55%	0.06%
MCF	MCF/LWAL+CDH+DUH/HEX:3/RES	\$3,438.8M	9,322	1.49%	0.43%
MCF	MCF/LWAL+CDL+DUL/HEX:1/COM	\$3,154.4M	11,641	1.36%	0.54%
W	W+WLI/LWAL+CDL+DUL/HEX:2/RES	\$3,122.2M	91,048	1.35%	4.24%
RC	CR/LDUAL+CDH+DUH/HEX:7/RES	\$2,965.8M	505	1.28%	0.02%
RC	CR/LFINF+CDL+DUL/HEX:2/RES	\$2,449.2M	59,517	1.06%	2.77%
RC	CR/LFM+CDL+DUL/HEX:2/RES	\$2,406.7M	58,486	1.04%	2.72%
MCF	MCF/LWAL+CDL+DUL/HEX:1/IND	\$2,385.5M	5,471	1.03%	0.25%
S	S+SL/LFM+CDL+DUL/HEX:1/COM	\$2,176.8M	6,894	0.94%	0.32%
RC	CR/LFM+CDL+DUL/HEX:1/IND	\$2,134.1M	4,084	0.92%	0.19%
MCF	MCF/LWAL+CDM+DUM/HEX:2/COM	\$2,057.6M	3,827	0.89%	0.18%
S	S+SR/LFINF+CDL+DUL/HEX:1/COM	\$2,015.0M	6,347	0.87%	0.30%
S	S+SR/LFM+CDL+DUL/HEX:2/IND	\$1,961.9M	1,160	0.85%	0.05%
MCF	MCF/LWAL+CDM+DUM/HEX:2/IND	\$1,798.4M	1,160	0.78%	0.05%
W	W+WLI/LWAL+CDL+DUL/HEX:2/SOS/RES	\$1,758.3M	51,274	0.76%	2.39%
OT	UNK/UNK+DNO/HEX:1/RES	\$1,753.7M	76,709	0.76%	3.57%