

# 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 = "Paraguay"
```

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

## Sanity checks and formats

## Exposure at National level

### Summary by occupancy type

	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
OCCUPANCY					
Res	7.3M	764.7K	\$60.3B	88.81%	76.64%
Ind	0.0M	38.7K	\$9.0B	4.49%	11.40%
Com	0.0M	57.6K	\$9.4B	6.69%	11.96%

### Other metrics to consider

	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
OCCUPANCY				
Total	115.7M	\$57,587.4M	134	\$680
Res	92.8M	\$46,460.9M	121	\$650
Ind	10.7M	\$4,810.2M	276	\$839
Com	12.3M	\$6,316.3M	213	\$767

## Exposure summary at Admin level 1

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
NAME_1						
Central	\$15,476.5M	135,386	1,833.2K	19.68%	15.72%	25.27%
Itapúa	\$8,104.6M	97,364	643.8K	10.30%	11.31%	8.87%
Alto Paraná	\$8,050.3M	85,964	768.0K	10.23%	9.98%	10.59%
Caaguazú	\$7,717.2M	91,316	630.9K	9.81%	10.61%	8.70%
Asunción	\$6,003.2M	50,459	735.5K	7.63%	5.86%	10.14%
San Pedro	\$5,980.9M	73,402	456.5K	7.60%	8.52%	6.29%
Paraguarí	\$4,310.9M	52,908	330.3K	5.48%	6.14%	4.55%
Cordillera	\$4,001.9M	47,395	327.0K	5.09%	5.50%	4.51%
Guairá	\$3,181.1M	37,810	256.9K	4.04%	4.39%	3.54%
Concepción	\$3,149.2M	37,344	256.6K	4.00%	4.34%	3.54%
Caazapá	\$2,679.4M	33,032	202.3K	3.41%	3.84%	2.79%
Canindeyú	\$2,544.4M	31,373	193.0K	3.23%	3.64%	2.66%
Misiones	\$1,861.8M	22,223	150.6K	2.37%	2.58%	2.08%
Amambay	\$1,747.1M	18,610	166.2K	2.22%	2.16%	2.29%
Presidente Hayes	\$1,548.4M	19,230	115.9K	1.97%	2.23%	1.60%
Ñeembucú	\$1,316.8M	15,300	111.4K	1.67%	1.78%	1.54%
Boquerón	\$722.7M	8,691	57.5K	0.92%	1.01%	0.79%
Alto Paraguay	\$259.6M	3,224	19.3K	0.33%	0.37%	0.27%

## Exposure by simplified taxonomy

Adding `MACRO_TAXO` column						
	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
MACRO_TAXO						
MCF	\$41,334.8M	387,923	3,092.2K	52.55%	45.05%	42.62%
MUR	\$21,567.6M	416,945	4,091.5K	27.42%	48.42%	56.40%
RC	\$12,958.1M	34,325	71.3K	16.47%	3.99%	0.98%
S	\$2,175.9M	15,510	0.0K	2.77%	1.80%	0.00%
MR	\$565.8M	5,965	0.0K	0.72%	0.69%	0.00%
W	\$54.0M	367	0.0K	0.07%	0.04%	0.00%

## 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+DNO/H:2/RES	\$14,019.4M	106,032	19.87%	13.02%
	MCF/LWAL+DNO/H:1/RES	\$10,384.8M	141,377	14.72%	17.36%
	MCF/LWAL+DUL/H:2/RES	\$7,009.7M	53,016	9.94%	6.51%
MUR	MUR/LWAL+DNO/H:1/RES	\$5,816.4M	143,940	8.25%	17.67%
	MUR+ST/LWAL+DNO/H:1/RES	\$5,751.0M	142,544	8.15%	17.50%
	MUR/LWAL+DNO/H:2/RES	\$4,486.9M	61,688	6.36%	7.57%
	MUR+ST/LWAL+DNO/H:2/RES	\$4,436.5M	61,090	6.29%	7.50%
MCF	MCF/LWAL+DUL/H:1/RES	\$3,894.3M	53,016	5.52%	6.51%
	MCF/LWAL+DNO/H:2/COM	\$2,677.4M	14,557	3.80%	1.79%
	CR/LFINF+DNO/HBET:1-3/IND	\$2,467.6M	8,704	3.50%	1.07%
RC	CR/LFINF+DNO/HBET:4-6/RES	\$2,241.9M	996	3.18%	0.12%
	CR/LFINF+DUL/HBET:4-6/RES	\$2,241.9M	996	3.18%	0.12%
MCF	MCF/LWAL+DNO/H:2/IND	\$1,769.6M	6,554	2.51%	0.80%
RC	CR/LFINF+DUL/HBET:1-3/IND	\$952.3M	3,359	1.35%	0.41%
MCF	MCF/LWAL+DNO/H:1/COM	\$923.5M	10,042	1.31%	1.23%
S	SR/LFM+DUL/H:1/IND	\$752.3M	5,108	1.07%	0.63%
RC	CR/LFINF+DUL/HBET:4-6/COM	\$715.3M	1,444	1.01%	0.18%

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