

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 (3.10.0-CAPI-1.16.0). Conversions between both will be slow.
  warnings.warn(
```

```
# Parameters
country = "Pakistan"
```

Exposure files:
Exposure_Com_Pakistan.csv
Exposure_Ind_Pakistan.csv
Exposure_Res_Pakistan.csv

Sanity checks and formats

Pakistan
../Exposure/Middle_East/Exposure_Com_Pakistan.csv
../Exposure/Middle_East/Exposure_Ind_Pakistan.csv
../Exposure/Middle_East/Exposure_Res_Pakistan.csv
Occupants / Dwellings = 6.2
Reference avg household size (2019) = 6.7
Population (exposure / UN_2021) = 0.95
Exposure models OK

Exposure at National level

Summary by occupancy type

	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
OCCUPANCY					
Res	212.9M	25,321.0K	\$402.1B	94.07%	73.97%
Ind	0.0M	482.4K	\$70.1B	1.79%	12.89%
Com	0.0M	1,114.2K	\$71.4B	4.14%	13.14%

Other metrics to consider

	AREA_SQM	COST_BUILDING_USD	COST_PER_CAPITA	AVG_BUILDING_AREA_SQM	AVG_COST_PER_SQM
OCCUPANCY					
Total	2,516.2M	\$385.4B	\$2,553	93	
Res	2,200.9M	\$321.6B	\$1,888	87	
Ind	94.7M	\$28.0B	\$329	196	
Com	220.6M	\$35.7B	\$335	198	

Exposure summary at Admin level 1

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
NAME_1						
Punjab	\$304,406.1M	14,437.4K	114,647.6K	56.00%	53.64%	53.85%
Sindh	\$124,365.2M	6,461.1K	52,945.9K	22.88%	24.00%	24.87%
Khyber Pakhtunkhwa	\$63,472.5M	3,237.4K	23,738.1K	11.68%	12.03%	11.15%
Balochistan	\$22,925.7M	1,333.0K	10,951.8K	4.22%	4.95%	5.14%
Azad Kashmir	\$10,829.6M	551.3K	4,045.0K	1.99%	2.05%	1.90%
Federally Administered Tribal Areas	\$9,626.8M	476.4K	3,417.7K	1.77%	1.77%	1.61%
Islamabad Capital Territory	\$4,630.7M	268.2K	2,073.2K	0.85%	1.00%	0.97%
Gilgit-Baltistan	\$3,301.6M	152.7K	1,081.5K	0.61%	0.57%	0.51%

Exposure by simplified taxonomy

	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
MACRO_TAXO						
RC	\$217.8B	4,194.9K	32,654.1K	40.07%	15.58%	15.34%
MUR	\$122.6B	9,488.5K	77,049.2K	22.55%	35.25%	36.19%
ADO/E	\$92.1B	8,837.0K	68,335.2K	16.94%	32.83%	32.10%
MCF	\$84.6B	2,938.1K	27,510.7K	15.56%	10.92%	12.92%
S	\$9.9B	164.6K	210.0K	1.82%	0.61%	0.10%
W	\$9.9B	1,031.6K	6,361.9K	1.81%	3.83%	2.99%
MR	\$6.8B	262.8K	779.8K	1.25%	0.98%	0.37%

Exposure by taxonomy

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

		COST_USD	BUILDINGS	COST_USD_%	BUILDINGS_%
MACRO_TAXO	TAXONOMY				
RC	CR+CIP/LFM/HEX:2/IND	\$39,895.7M	192.0K	8.20%	0.78%
MCF	MCF+CBS/LWAL/HEX:1/RES	\$36,793.4M	2,007.5K	7.56%	8.18%
MUR	MUR+CBS/LWAL+DNO/HEX:1/RES	\$31,849.1M	3,330.6K	6.54%	13.57%
RC	CR/LFM+DNO/HEX:1/RES	\$26,518.9M	1,446.9K	5.45%	5.90%
ADO/E	MUR+ADO/LWAL+DNO/HEX:1/RES	\$25,941.1M	1,415.4K	5.33%	5.77%
	EU+ETO/LWAL/HEX:1/RES	\$24,536.4M	3,848.8K	5.04%	15.68%
RC	CR+CIP/LFM/HEX:1/IND	\$23,694.9M	228.0K	4.87%	0.93%
	CR+CIP/LDUAL+DUC/HBET:3;5/RES	\$20,329.0M	277.3K	4.18%	1.13%
MUR	MUR+CBS/LWAL+DNO/HEX:2/RES	\$19,109.5M	999.2K	3.93%	4.07%
	MUR+CLBRS/LWAL+DNO/HBET:1/RES	\$16,401.7M	1,715.2K	3.37%	6.99%
MCF	MCF+CBS/LWAL/HEX:2/RES	\$16,352.6M	446.1K	3.36%	1.82%
RC	CR/LFM+DNO/HEX:2/RES	\$13,986.1M	381.5K	2.87%	1.55%
ADO/E	EU+ETO/LWAL/HEX:2/RES	\$13,066.7M	1,024.8K	2.68%	4.18%
MUR	MUR+CBS/LWAL+DNO/HEX:3/RES	\$12,739.7M	444.1K	2.62%	1.81%
MCF	MCF+CBS/LWAL/HEX:3/RES	\$12,264.4M	223.1K	2.52%	0.91%
MUR	MUR+CLBRS/LWAL+DNO/HBET:2/RES	\$11,481.2M	600.3K	2.36%	2.45%
ADO/E	MUR+ADO/LWAL+DNO/HEX:2/RES	\$9,474.2M	495.4K	1.95%	2.02%
	EU+ETR/HEX:1/RES	\$9,373.3M	1,470.3K	1.93%	5.99%
RC	CR+CIP/LWAL+DNO/HEX:2/RES	\$9,306.6M	253.9K	1.91%	1.03%
MUR	MUR+STRUB/HEX:1/RES	\$8,464.0M	885.1K	1.74%	3.61%
RC	CR+CIP/LFM+DNO/HBET:1-3/COM	\$8,426.6M	147.0K	1.73%	0.60%
MCF	MCF+CBS/LWAL/HEX:4/RES	\$8,176.4M	111.5K	1.68%	0.45%
	CR+CIP/LFINF+DNO/HBET:1-3/COM	\$8,051.2M	140.5K	1.65%	0.57%
RC	CR/LFINF/HEX:1/RES	\$7,983.3M	435.6K	1.64%	1.77%
	CR+CIP/LFINF+DUC/HBET:1-3/COM	\$7,375.1M	128.7K	1.51%	0.52%
MUR	MUR+STDRE/HEX:1/RES	\$7,254.8M	758.7K	1.49%	3.09%
S	S/LFM/HEX:1/IND	\$6,482.8M	62.4K	1.33%	0.25%
RC	CR+CIP/LFM+DUC/HBET:1-3/COM	\$6,091.0M	106.3K	1.25%	0.43%
ADO/E	EU+ETR/HEX:2/RES	\$5,619.6M	440.8K	1.15%	1.80%
MR	MR/HBET:1-3/COM	\$5,579.2M	136.3K	1.15%	0.56%
	CR+CIP/LFM+DNO/HBET:4-7/COM	\$5,157.6M	20.3K	1.06%	0.08%
RC	CR+CIP/LFM+DUC/HBET:4-7/COM	\$5,148.6M	20.2K	1.06%	0.08%
	CR/LFM+DUC/HEX:3/RES	\$5,043.5M	91.7K	1.04%	0.37%
	CR+CIP/LFINF+DUC/HBET:4-7/COM	\$4,994.7M	19.6K	1.03%	0.08%
MUR	MUR+CLBRS/LWAL+DNO/HBET:3/RES	\$4,920.5M	171.5K	1.01%	0.70%
RC	CR+CIP/LFINF+DNO/HBET:4-7/COM	\$4,850.1M	19.1K	1.00%	0.08%
MCF	MCF+CBS/LWAL/HEX:5/RES	\$4,088.1M	44.6K	0.84%	0.18%

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