COUNTRY EXPOSURE MODEL

Review main statistic of a exposure model and create summaries for a given Country.

```
# Parameters
country = "Puerto_Rico"
```

```
Exposure files:
  Exposure_Com_Puerto_Rico.csv
  Exposure_Ind_Puerto_Rico.csv
  Exposure_Res_Puerto_Rico.csv
```

Sanity checks and formats

```
Puerto_Rico
  Exposure/Exposure/Exposure_Com_Puerto_Rico.csv
  Exposure/Exposure/Exposure_Ind_Puerto_Rico.csv
  Exposure/Exposure/Exposure_Res_Puerto_Rico.csv
              Missing column 'DWELLINGS' in DataFrame
  Not possible to check if No_dwellings >= No_buildings.
  Occupants / Buildings = 2.7
  Reference avg household size (2019) = 2.68
WARNING - Check population:
  Exposure population = 3726.0k
  UN 2021 population = 2828.0k
  Population (exposure / UN_2021) = 1.32
Exposure models  OK
```

Exposure at National level

Summary by occupancy type

OCCUPANCY	OCCUPANTS	BUILDINGS	COST_USD	BUILDINGS_%	COST_USD_%
Res	3,725.8K	1,398,079	$418,603.5M	99.57%	94.79%
Ind	0.0K	945	$3,785.9M	0.07%	0.86%
Com	0.0K	5,148	$19,224.1M	0.37%	4.35%

Other metrics to consider

OCCUPANCY	AREA_SQM	COST_BUILDING_USD	AVG_BUILDING_AREA_SQM	AVG_COST_PER_AREA_USD
Total	283,948.3K	$289,788.1M	202	$1,555
Res	276,311.5K	$279,070.0M	198	$1,515
Ind	1,525.5K	$1,655.0M	1,614	$2,482
Com	6,111.3K	$9,063.1M	1,187	$3,146

Exposure summary at Admin level 1

NAME_1	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
Puerto Rico	$441.6B	1,404.2K	3,725.8K	100.00%	100.00%	100.00%

Exposure by simplified taxonomy

```
Adding `MACRO_TAXO` column
```

MACRO_TAXO	COST_USD	BUILDINGS	OCCUPANTS	COST_USD_%	BUILDINGS_%	OCCUPANTS_%
OT	$441.6B	1,404.2K	3,725.8K	100.00%	100.00%	100.00%

Exposure by taxonomy

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

MACRO_TAXO	TAXONOMY	COST_USD	BUILDINGS	COST_USD_%	BUILDINGS_%
OT	RES1-URML-LC	$147,388.6M	781,727	37.15%	56.61%
	RES1-W1-MC	$58,916.2M	312,482	14.85%	22.63%
	RES1-URML-PC	$39,179.2M	207,801	9.88%	15.05%
	RES3C-C2L-MC	$16,321.1M	7,194	4.11%	0.52%
	RES3D-C2L-MC	$13,699.6M	3,348	3.45%	0.24%
	RES3F-C2L-MC	$13,616.9M	660	3.43%	0.05%
	RES3C-URML-LC	$12,953.3M	5,713	3.27%	0.41%
	RES3B-C2L-MC	$11,875.9M	14,847	2.99%	1.08%
	RES3D-URML-LC	$10,682.0M	2,610	2.69%	0.19%
	RES3F-URML-LC	$10,434.4M	504	2.63%	0.04%
	RES3B-URML-LC	$9,425.4M	11,783	2.38%	0.85%
	RES3E-C2L-MC	$6,609.6M	796	1.67%	0.06%
	RES3A-C2L-MC	$5,739.5M	9,599	1.45%	0.70%
	RES3E-URML-LC	$5,153.7M	620	1.30%	0.04%
	RES3A-URML-LC	$4,638.0M	7,755	1.17%	0.56%
	RES3C-C2L-PC	$4,307.0M	1,897	1.09%	0.14%
	RES3D-C2L-PC	$3,615.2M	877	0.91%	0.06%
	RES3F-C2L-PC	$3,593.3M	172	0.91%	0.01%
	RES3C-URML-PC	$3,238.3M	1,428	0.82%	0.10%
	RES3B-C2L-PC	$3,133.9M	3,918	0.79%	0.28%
	RES3D-URML-PC	$2,670.5M	656	0.67%	0.05%
	RES3F-URML-PC	$2,608.6M	130	0.66%	0.01%
	RES5-C2L-MC	$2,438.3M	706	0.61%	0.05%
	RES3B-URML-PC	$2,356.3M	2,946	0.59%	0.21%
	RES5-URML-LC	$2,099.6M	620	0.53%	0.04%