Real Estate Modelling

AT 2023

Prof. Dr. Kathleen Kürschner Rauck

Tutorial 2: R Markdown, Descriptive Statistics, Maps

Learning Outcomes	R Functions	Packages	Data
Understand what R markdown is Know how to generate R markdown-html-files		`rmarkdown`; `knitr`	
Know how to query data frame dimension	`dim()`		Lucas_County_data

Know how to generate factor variables
& query/store factor information
	`as.factor()`; `levels()`
	`table()`
	`as.data.frame()`
	`colnames()`		

Know how to query info on extreme values	`which.min()`		
Be able to obtain selected descriptive statistics	`stat.desc()`; `t()`	`pastecs`	

Be able to prepare a map widget using R	`leaflet()`
	`setView()`; `mean()`
	`addTiles()`
	`addProviderTiles()`
		`leaflet`
		`leaflet.extras`
		`leaflet.providers`	

Be able to use R to plot data in a map	`palette_explorer()`
	`colorQuantile()`
	`addCircleMarkers()`
	`addLegend()`
	`quantile()`; `seq()`
	`markerClusterOptions()`
		`tmap`; `tmaptools`
		`shiny`; `shinyjs`	

Practical 1: Descriptive Statistics

a. Load the **Lucas_County_data** into RStudio and store it in a data frame, called **dat1**. What are its dimensions?

b. Transform variable *wall* into a factor variable, determine its levels and the distribution of observations across the different levels, storing the information in data frame **Tab.wall**. Name the column containing the names of the levels *Wall Category*.

c. Which property observation has the lowest price?

d. Obtain selected descriptive statistics (i.e., the number of observations, mean, standard deviation, minimum and maximum values) for the numerical variables of **dat1**, using the `pastecs` package.

Practical 2: Maps

a. Using the `leaflet` package, prepare a map widget for the **Lucas_County_data** in RStudio.

b. Use the map widget to depict the variable *price* according to deciles, using the exact (geo-referenced) property locations.

c. Prepare a new map widget for the **Lucas_County_data**. Use cluster markers to depict the spatial density of property observations.