CASA0003_ Week4_Homework

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Comparing global gender inequality index between 2019 and 2010

```
library(here)
```

Load all libraries

```
## here() starts at D:/MSC URBAN SPATIAL SCIENCE/CASA005 GIS/WEEK 4/HOMEWORK/GIS-HW-W4
```

```
library(sf)
```

```
## Linking to GEOS 3.12.1, GDAL 3.8.4, PROJ 9.3.1; sf_use_s2() is TRUE
```

```
library(tidyverse)
```

```
## -- Attaching core tidyverse packages ------------------------ tidyverse 2.0.0 --
## v dplyr     1.1.4     v readr     2.1.5
## v forcats   1.0.0     v stringr   1.5.1
## v ggplot2   3.5.1     v tibble    3.2.1
## v lubridate 1.9.3     v tidyr     1.3.1
## v purrr     1.0.2
```

```
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```
library(countrycode)
library(tmap)
```

```
##
## Adjuntando el paquete: 'tmap'
##
## The following object is masked from 'package:datasets':
##
##     rivers
```

```
library(ggplot2)
```

```
world_countries <- st_read(here("data","World_Countries_Generalized.shp"))
```

Define variables

```
## Reading layer `World_Countries_Generalized' from data source
##   `D:\MSC URBAN SPATIAL SCIENCE\CASA005 GIS\WEEK 4\HOMEWORK\GIS-HW-W4\data\World_Countries_Generalize
```

```
##   using driver `ESRI Shapefile'
## Simple feature collection with 251 features and 4 fields
## Geometry type: MULTIPOLYGON
## Dimension:     XY
## Bounding box:  xmin: -20037510 ymin: -30240970 xmax: 20037510 ymax: 18418390
## Projected CRS: WGS 84 / Pseudo-Mercator
```

```
inequality_data <- read.csv(here("data","HDR23-24_Composite_indices_complete_time_series.csv"))
```

```
inequality_data$country_code <- countrycode(inequality_data$iso3, origin="iso3c", destination="iso2c", w
```

Uniform country codes

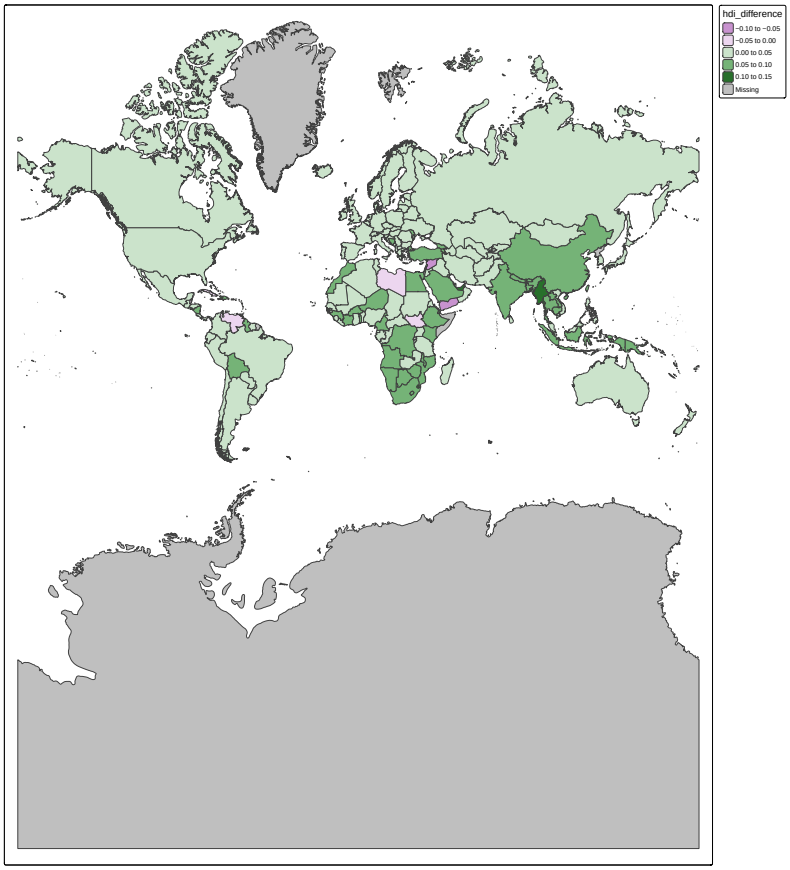
```
inequality_data_clean <-  inequality_data %>%
  dplyr::select("country_code","hdi_2010","hdi_2019")

world_countries_clean <- world_countries %>%
  dplyr::select("ISO", "COUNTRY","geometry")

inequality_data_clean <- inequality_data_clean %>%
    mutate(hdi_difference= (hdi_2019 - hdi_2010))
```

Clean data keeping only useful columns

```
countries_inequality <- world_countries_clean %>%
  left_join(.,
            inequality_data_clean,
            by=c("ISO"="country_code"))
```

Join inequality data to spatial data

```
tmap_mode("plot")
qtm(countries_inequality, fill= "hdi_difference")
```


hdi_difference
−0.10 to −0.05
−0.05 to 0.00
0.00 to 0.05
0.05 to 0.10
0.10 to 0.15
Missing

Plot data